

INSTALLATION RESTORATION PROGRAM

Final UST REMOVAL REPORT

117th REFUELING WING
Alabama Air National Guard
Birmingham Airport
Birmingham, Alabama

and

226th COMBAT INFORMATION SYSTEMS GROUP
Martin Air National Guard Station
Gadsden Airport
Gadsden, Alabama

VOLUME II

January 1997

DISTRIBUTION STATEMENT A

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HAZARDOUS WASTE REMEDIAL ACTIONS PROGRAM
Environmental Restoration and Waste Management Programs
Oak Ridge, Tennessee 37831-7606
managed by LOCKHEED MARTIN ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY under contract DE-AC05-84OR21400

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REPORT DOCUMENTATION PAGE

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12a. DISTRIBUTION/AVAILABILITY STATEMENT unlimited distribution				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 Words) The Installation Restoration Program was initiated by the Air National Guard (ANG) to evaluate potential contamination to the environment caused by past practices at its installations. During the 1987 Preliminary Assessment (PA), ten abandoned underground storage tanks (USTs) were identified at nine sites. During the 1991 Site Investigation, surveys found four USTs at four sites and none at the other sites. The UST at Gadsden was removed in November 1989. Three USTs were removed at Birmingham in January 1991. Remaining soil was below Alabama Department of Environmental Management's (ADEM) corrective action limit of 100 ppm total petroleum hydrocarbon (TPH) for the Gadsden UST and UST 380 at Birmingham. For USTs 120 and 130 at Birmingham, remaining soil was above ADEM's corrective action limit, but believed to be limited to soils immediately adjacent to the tank pits. The report recommends no further action be taken at any of the UST sites.					
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Appendix D

LABORATORY REPORTS



December 12, 1989

MGM27232.UT.FW

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard, Laboratory No. 14841

Dear Mr. Martin:

On November 10, 1989, the CH2M Hill Montgomery Laboratory received five samples with a request for analysis of selected organic and inorganic parameters.

The analytical results and associated quality control data are enclosed. No unusual difficulties were encountered during the analysis of these samples.

The Purgeable compounds (8010/8020) analysis was performed at our Gainesville, Florida laboratory. A copy of their report is enclosed.

If you should have any questions concerning the data, please inquire.

Sincerely,

A handwritten signature in cursive script, appearing to read 'Craig Vinson', is written over the typed name and title.

Craig Vinson
Laboratory Manager

Enclosures

cc: Mr. Bill Morgan/MGM
Mr. Kevin Sanders/LMG

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CH2M HILL Laboratory No. 14841

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982) and in Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

- J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated PQL. The "J" qualifier is not used with pesticide results.

- C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

- E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

- D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

- A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

- X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

- JX -- This value is less than the sample quantitation limit that would have been displayed for "U".

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

- DL** -- Dilution Run
- R** -- Rerun (may be followed by a digit to indicate multiple reruns)
- RD** -- Diluted Rerun
- RX** -- Re-extraction Analysis
- MS** -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)
- MSD** -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)
- QC_BLANK** -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 14841

CH2M HILL Sample No.	Sample Description				
14841001	SAMPLE UST 120	STA 1	11/09/89	1610	GRAB
14841002	SAMPLE UST 380	STA 2	11/09/89	1510	GRAB
14841003	SAMPLE UST 380 DUPS	STA 2	11/09/89	1510	GRAB
14841004	SAMPLE EQUIP. BLANKS	STA 3	11/09/89	1545	GRAB
14841005	SAMPLE TRAVEL BLANK	STA 4	11/08/89		GRAB

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89

Page: 1 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: UST 120 11/9/89 1610 GRAB
 Laboratory Sample Number: 14841001 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602	10	<10	ug/L	11/21/89
Bromomethane	EPA601/602	10	<10	ug/L	11/21/89
Dichlorodifluoromethane	EPA601/602	NR	NR	NR	11/21/89
Vinyl Chloride	EPA601/602	10	<10	ug/L	11/21/89
Chloroethane	EPA601/602	10	<10	ug/L	11/21/89
Dichloromethane	EPA601/602	10	<10	ug/L	11/21/89
Trichlorofluoromethane	EPA601/602	NR	NR	NR	11/21/89
1,1-Dichloroethene	EPA601/602	10	<10	ug/L	11/21/89
1,1-Dichloroethane	EPA601/602	10	<10	ug/L	11/21/89
trans-1,2-Dichloroethene	EPA601/602	10	<10	ug/L	11/21/89
Chloroform	EPA601/602	10	<10	ug/L	11/21/89
1,2-Dichloroethane	EPA601/602	10	<10	ug/L	11/21/89
1,1,1-Trichloroethane	EPA601/602	10	<10	ug/L	11/21/89
Carbon tetrachloride	EPA601/602	10	<10	ug/L	11/21/89
Bromodichloromethane	EPA601/602	10	<10	ug/L	11/21/89
1,2-Dichloropropane	EPA601/602	10	<10	ug/L	11/21/89
cis-1,3-Dichloropropene	EPA601/602	10	<10	ug/L	11/21/89
Trichloroethene	EPA601/602	10	<10	ug/L	11/21/89
Dibromochloromethane	EPA601/602	10	<10	ug/L	11/21/89
1,1,2-Trichloroethane	EPA601/602	10	<10	ug/L	11/21/89
trans-1,3-Dichloropropene	EPA601/602	10	<10	ug/L	11/21/89
Bromoform	EPA601/602	10	<10	ug/L	11/21/89
Tetrachloroethene	EPA601/602	10	<10	ug/L	11/21/89
1,1,2,2-Tetrachloroethane	EPA601/602	10	<10	ug/L	11/21/89
tert-Butyl methyl ether	EPA601/602	10	<10	ug/L	11/21/89
2-Chloroethylvinyl ether	EPA601/602	NR	NR	NR	11/21/89
Benzene	EPA601/602	10	<10	ug/L	11/21/89
Toluene	EPA601/602	10	8.8 J	ug/L	11/21/89
Chlorobenzene	EPA601/602	10	<10	ug/L	11/21/89
Ethylbenzene	EPA601/602	10	<10	ug/L	11/21/89
Total Xylenes	EPA601/602	1.0	52	ug/L	11/21/89
1,3-Dichlorobenzene	EPA601/602	10	<10	ug/L	11/21/89
1,2-Dichlorobenzene	EPA601/602	10	<10	ug/L	11/21/89
1,4-Dichlorobenzene	EPA601/602	10	<10	ug/L	11/21/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

000001
 INORGREP(v891205)



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89

Page: 2 of 10

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
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MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Sample Description: UST 120 11/9/89 1610 GRAB

Laboratory Sample Number: 14841001 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Bromochloromethane	EPA601/602	N/A	105	%rec	11/21/89
a,a,a-Trifluorotoluene	EPA601/602	N/A	89	%rec	11/21/89

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detection limit

Reviewed by: 

INORGREP(v891205)

000002



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89

Page: 3 of 10

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Sample Description: UST 380 11/9/89 1510 GRAB

Laboratory Sample Number: 14841002 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602	250000	<250000	ug/L	11/21/89
Bromomethane	EPA601/602	250000	<250000	ug/L	11/21/89
Dichlorodifluoromethane	EPA601/602	NR	NR	NR	11/21/89
Vinyl Chloride	EPA601/602	250000	<250000	ug/L	11/21/89
Chloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
Dichloromethane	EPA601/602	250000	<250000	ug/L	11/21/89
Trichlorofluoromethane	EPA601/602	NR	NR	NR	11/21/89
1,1-Dichloroethene	EPA601/602	250000	<250000	ug/L	11/21/89
1,1-Dichloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
trans-1,2-Dichloroethene	EPA601/602	250000	<250000	ug/L	11/21/89
Chloroform	EPA601/602	250000	<250000	ug/L	11/21/89
1,2-Dichloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
1,1,1-Trichloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
Carbon tetrachloride	EPA601/602	250000	<250000	ug/L	11/21/89
Bromodichloromethane	EPA601/602	250000	<250000	ug/L	11/21/89
1,2-Dichloropropane	EPA601/602	250000	<250000	ug/L	11/21/89
cis-1,3-Dichloropropene	EPA601/602	250000	<250000	ug/L	11/21/89
Trichloroethene	EPA601/602	250000	<250000	ug/L	11/21/89
Dibromochloromethane	EPA601/602	250000	<250000	ug/L	11/21/89
1,1,2-Trichloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
trans-1,3-Dichloropropene	EPA601/602	250000	<250000	ug/L	11/21/89
Bromoform	EPA601/602	250000	<250000	ug/L	11/21/89
Tetrachloroethene	EPA601/602	250000	<250000	ug/L	11/21/89
1,1,2,2-Tetrachloroethane	EPA601/602	250000	<250000	ug/L	11/21/89
tert-Butyl methyl ether	EPA601/602	250000	<250000	ug/L	11/21/89
2-Chloroethylvinyl ether	EPA601/602	NR	NR	NR	11/21/89
Benzene	EPA601/602	250000	<250000	ug/L	11/21/89
Toluene	EPA601/602	250000	<250000	ug/L	11/21/89
Chlorobenzene	EPA601/602	250000	<250000	ug/L	11/21/89
Ethylbenzene	EPA601/602	250000	<250000	ug/L	11/21/89
Total Xylenes	EPA601/602	250000	6300000	ug/L	11/21/89
1,3-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/21/89
1,2-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/21/89
1,4-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/21/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
N/A = Not Applicable NR = Not Reported
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detection limit

Reviewed by: 

INORGRP(v891205)

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REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
 Page: 4 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: UST 380 11/9/89 1510 GRAB

Laboratory Sample Number: 14841002 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Bromochloromethane	EPA601/602	N/A	105	%rec	11/21/89
a,a,a-Trifluorotoluene	EPA601/602	N/A	98	%rec	11/21/89

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 detection limit

Reviewed by: 

INORGREP(v891205)

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REPORT OF ANALYTICAL RESULTS

Date: 12/12/89
Page: 5 of 10

Client: CH2M HILL/MGM
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 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: UST 380 DUPS 11/9/89 1510 GRAB

Laboratory Sample Number: 14841003 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602	250000	<250000	ug/L	11/20/89
Bromomethane	EPA601/602	250000	<250000	ug/L	11/20/89
Dichlorodifluoromethane	EPA601/602	NR	NR	NR	11/20/89
Vinyl Chloride	EPA601/602	250000	<250000	ug/L	11/20/89
Chloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
Dichloromethane	EPA601/602	250000	<250000	ug/L	11/20/89
Trichlorofluoromethane	EPA601/602	NR	NR	NR	11/20/89
1,1-Dichloroethene	EPA601/602	250000	<250000	ug/L	11/20/89
1,1-Dichloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
trans-1,2-Dichloroethene	EPA601/602	250000	<250000	ug/L	11/20/89
Chloroform	EPA601/602	250000	<250000	ug/L	11/20/89
1,2-Dichloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
1,1,1-Trichloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
Carbon tetrachloride	EPA601/602	250000	<250000	ug/L	11/20/89
Bromodichloromethane	EPA601/602	250000	<250000	ug/L	11/20/89
1,2-Dichloropropane	EPA601/602	250000	<250000	ug/L	11/20/89
cis-1,3-Dichloropropene	EPA601/602	250000	<250000	ug/L	11/20/89
Trichloroethene	EPA601/602	250000	<250000	ug/L	11/20/89
Dibromochloromethane	EPA601/602	250000	<250000	ug/L	11/20/89
1,1,2-Trichloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
trans-1,3-Dichloropropene	EPA601/602	250000	<250000	ug/L	11/20/89
Bromoform	EPA601/602	250000	<250000	ug/L	11/20/89
Tetrachloroethene	EPA601/602	250000	<250000	ug/L	11/20/89
1,1,2,2-Tetrachloroethane	EPA601/602	250000	<250000	ug/L	11/20/89
tert-Butyl methyl ether	EPA601/602	250000	<250000	ug/L	11/20/89
2-Chloroethylvinyl ether	EPA601/602	NR	NR	NR	11/20/89
Benzene	EPA601/602	250000	<250000	ug/L	11/20/89
Toluene	EPA601/602	250000	<250000	ug/L	11/20/89
Chlorobenzene	EPA601/602	250000	<250000	ug/L	11/20/89
Ethylbenzene	EPA601/602	250000	<250000	ug/L	11/20/89
Total Xylenes	EPA601/602	250000	5900000	ug/L	11/20/89
1,3-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/20/89
1,2-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/20/89
1,4-Dichlorobenzene	EPA601/602	250000	<250000	ug/L	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

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 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGREP(v891205)

000005
205.271.1444

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
 Page: 6 of 10

Client: CH2M HILL/MGM
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 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: UST 380 DUPS 11/9/89 1510 GRAB
 Laboratory Sample Number: 14841003 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Bromochloromethane	EPA601/602	N/A	96	%rec	11/20/89
a,a,a-Trifluorotoluene	EPA601/602	N/A	101	%rec	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

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 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGREP(v891205)

000006

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
Page: 7 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: EQUIP BLANK 11/9/89 1545 GRAB
 Laboratory Sample Number: 14841004 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromomethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dichlorodifluoromethane	EPA601/602	NR	NR	NR	11/20/89
Vinyl Chloride	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dichloromethane	EPA601/602	1.0	2.9	ug/L	11/20/89
Trichlorofluoromethane	EPA601/602	NR	NR	NR	11/20/89
1,1-Dichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1-Dichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
trans-1,2-Dichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chloroform	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,1-Trichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Carbon tetrachloride	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromodichloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichloropropane	EPA601/602	1.0	<1.0	ug/L	11/20/89
cis-1,3-Dichloropropene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Trichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dibromochloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,2-Trichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
trans-1,3-Dichloropropene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromoform	EPA601/602	1.0	<1.0	ug/L	11/20/89
Tetrachloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,2,2-Tetrachloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
tert-Butyl methyl ether	EPA601/602	1.0	<1.0	ug/L	11/20/89
2-Chloroethylvinyl ether	EPA601/602	NR	NR	NR	11/20/89
Benzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Toluene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Ethylbenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Total Xylenes	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,3-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,4-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGREP (7891205)

000007

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
 Page: 8 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: EQUIP BLANK 11/9/89 1545 GRAB
 Laboratory Sample Number: 14841004 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Bromochloromethane	EPA601/602	N/A	99	%rec	11/20/89
a,a,a-Trifluorotoluene	EPA601/602	N/A	97	%rec	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGREP(v891205)

000008

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
 Page: 9 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: TRAVEL BLANK 11/8/89 GRAB
 Laboratory Sample Number: 14841005 Date Collected: 11/08/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromomethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dichlorodifluoromethane	EPA601/602	NR	NR	NR	11/20/89
Vinyl Chloride	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dichloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Trichlorofluoromethane	EPA601/602	NR	NR	NR	11/20/89
1,1-Dichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1-Dichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
trans-1,2-Dichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chloroform	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,1-Trichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
Carbon tetrachloride	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromodichloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichloropropane	EPA601/602	1.0	<1.0	ug/L	11/20/89
cis-1,3-Dichloropropene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Trichloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Dibromochloromethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,2-Trichloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
trans-1,3-Dichloropropene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Bromoform	EPA601/602	1.0	<1.0	ug/L	11/20/89
Tetrachloroethene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,1,2,2-Tetrachloroethane	EPA601/602	1.0	<1.0	ug/L	11/20/89
tert-Butyl methyl ether	EPA601/602	1.0	<1.0	ug/L	11/20/89
2-Chloroethylvinyl ether	EPA601/602	NR	NR	NR	11/20/89
Benzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Toluene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Chlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Ethylbenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
Total Xylenes	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,3-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,2-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89
1,4-Dichlorobenzene	EPA601/602	1.0	<1.0	ug/L	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGRP(v891205)

000009

REPORT OF ANALYTICAL RESULTS

Date: 12/11/89
 Page: 10 of 10

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: TRAVEL BLANK 11/8/89 GRAB
 Laboratory Sample Number: 14841005 Date Collected: 11/08/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Bromochloromethane	EPA601/602	N/A	103	%rec	11/20/89
a,a,a-Trifluorotoluene	EPA601/602	N/A	97	%rec	11/20/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENTS: %rec = Percent Recovery
 N/A = Not Applicable NR = Not Reported
 J = Presence indicated but less than stated
 detection limit

Reviewed by: 

INORGREP(v891205)

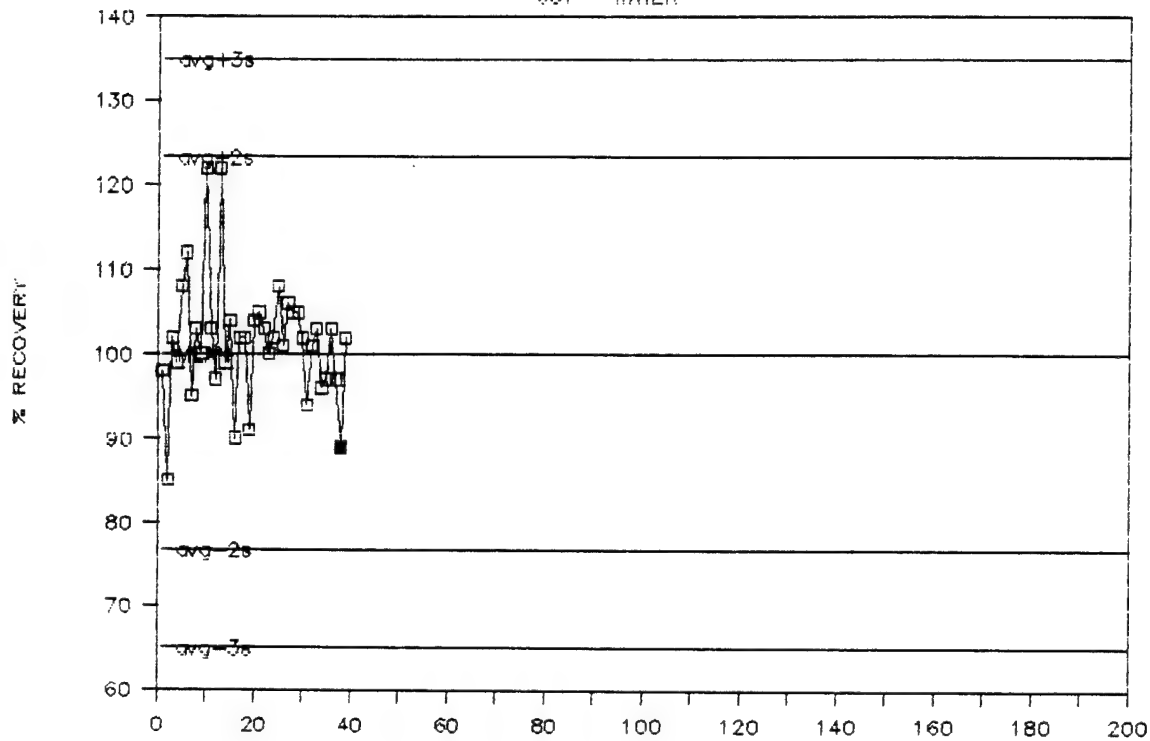
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Engineers
Planners
Economists
Scientists

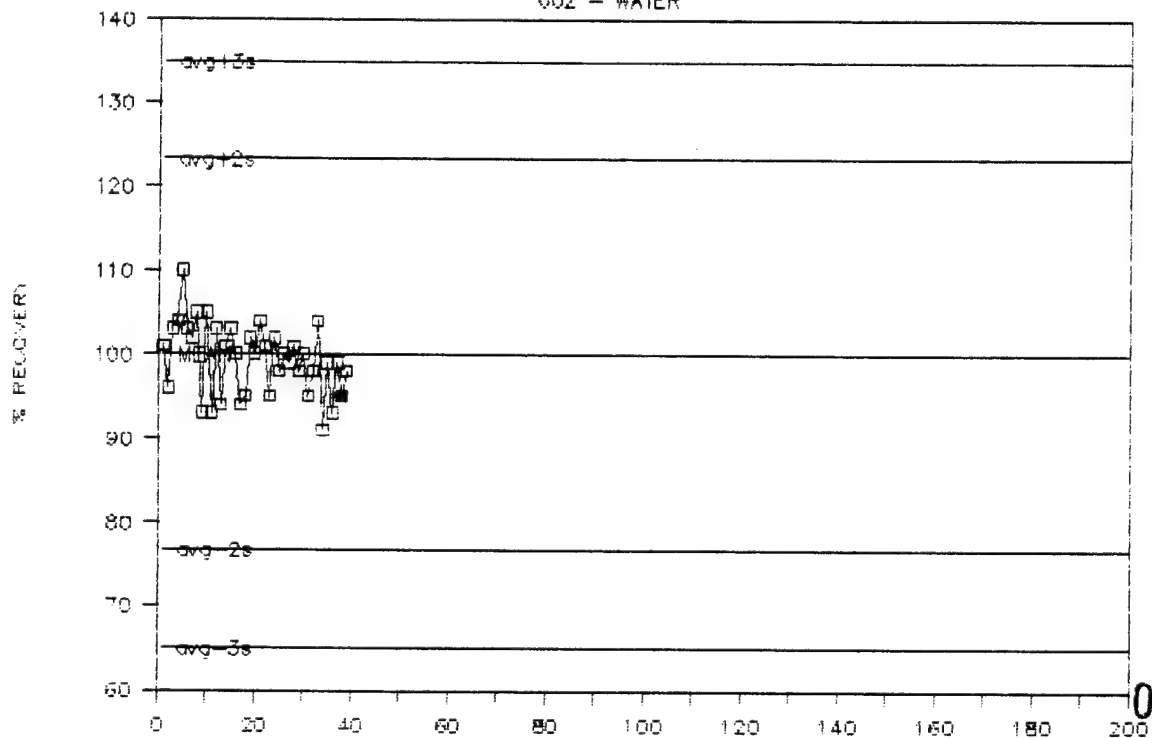
SURROGATE RECOVERY

601 - WATER



SURROGATE RECOVERY

602 - WATER



000011



601 602 601 602 COMMENTS
 SURROGATE SURROGATE ACCEPTABLE? OUTLIER? ACCEPTABLE? OUTLIER?
 % REC. % REC.

1	1VB1013C	10/13/89	98.0	101.0	YES	ERR	YES	ERR
2	2VB1013A	10/13/89	85.0	96.0	YES	ERR	YES	ERR
3	2VB1013B	10/13/89	102.0	103.0	YES	NO	YES	NO
4	1VB1016A	10/16/89	99.0	104.0	YES	NO	YES	NO
5	2VB1016A	10/16/89	108.0	110.0	YES	NO	YES	NO
6	2VB1016B	10/16/89	112.0	103.0	YES	NO	YES	NO
7	1VB1017A	10/17/89	95.0	102.0	YES	NO	YES	NO
8	2VB1017A	10/17/89	103.0	105.0	YES	NO	YES	NO
9	1VB1018A	10/18/89	100.0	93.0	YES	NO	YES	NO
10	2VB1018A	10/18/89	122.0	105.0	YES	NO	YES	NO
11	1VB1019A	10/19/89	103.0	93.0	YES	NO	YES	NO
12	2VB1020A	10/20/89	97.0	103.0	YES	NO	YES	NO
13	1VB1022A	10/22/89	122.0	94.0	YES	NO	YES	NO
14	1VB1022B	10/22/89	99.0	101.0	YES	NO	YES	NO
15	1VB1023A	10/23/89	104.0	103.0	YES	NO	YES	NO
16	1VB1024A	10/24/89	90.0	100.0	YES	NO	YES	NO
17	1VB1025A	10/25/89	102.0	94.0	YES	NO	YES	NO
18	1VB1025B	10/25/89	102.0	95.0	YES	NO	YES	NO
19	2VB1025A	10/25/89	91.0	102.0	YES	NO	YES	NO
20	1VB1026A	10/26/89	104.0	100.0	YES	NO	YES	NO
21	1VB1027A	10/27/89	105.0	104.0	YES	NO	YES	NO
22	1VB1030A	10/30/89	103.0	101.0	YES	NO	YES	NO
23	1VB1030C	10/30/89	100.0	95.0	YES	NO	YES	NO
24	1VB1031A	10/31/89	102.0	102.0	YES	NO	YES	NO
25	2VB1031A	10/31/89	108.0	98.0	YES	NO	YES	NO
26	1VB1101A	11/01/89	101.0	100.0	YES	NO	YES	NO
27	1VB1101B	11/01/89	106.0	99.0	YES	NO	YES	NO
28	2VB1108A	11/08/89	105.0	101.0	YES	NO	YES	NO
29	1VB1109A	11/09/89	105.0	98.0	YES	NO	YES	NO
30	2VB1109A	11/09/89	102.0	100.0	YES	NO	YES	NO
31	1VB1116A	11/16/89	94.0	95.0	YES	NO	YES	NO
32	1VB1117A	11/17/89	101.0	98.0	YES	NO	YES	NO
33	2VB1117A	11/17/89	103.0	104.0	YES	NO	YES	NO
34	1VB1118A	11/18/89	96.0	91.0	YES	NO	YES	NO
35	2VB1118A	11/18/89	97.0	99.0	YES	NO	YES	NO
36	1VB1119A	11/19/89	103.0	93.0	YES	NO	YES	NO
37	2VB1119B	11/19/89	97.0	99.0	YES	NO	YES	NO
38	1VB1120A	11/20/89	89.0	95.0	YES	NO	YES	NO
39	2VB1120B	11/20/89	102.0	98.0	YES	NO	YES	NO
40								
41								
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ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 14841001
Client Sample ID: UST 120

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 11/13/89
Date Analyzed: 12/05/89
Dilution Factor: 5.0

PNA COMPOUNDS

CAS Number	ug/L	CAS Number	ug/L
91-20-3	Naphthalene 19		
91-57-6	2-Methylnaphthalene . . . 210		
90-12-0	1-Methylnaphthalene . . . 180		
208-96-8	Acenaphthylene 10 U		
83-32-9	Acenaphthene 15		
86-73-7	Fluorene 22		
85-01-8	Phenanthrene 10 U		
120-12-7	Anthracene 10 U		
206-44-0	Fluoranthene 10 U		
129-00-0	Pyrene 10 U		
56-55-3	Benzo(a)anthracene 10 U		
218-01-9	Chrysene 10 U		
205-99-2	Benzo(b)fluoranthene . . . 10 U		
207-08-9	Benzo(k)fluoranthene . . . 10 U		
50-32-8	Benzo(a)pyrene 10 U		
193-39-5	Indeno(1,2,3-cd)pyrene . . 10 U		
53-70-3	Dibenzo(a,h)anthracene . . 10 U		
191-24-2	Benzo(g,h,i)perylene . . . 10 U		
	Terphenyl-d14 SS 39		

U - Compound analyzed for but not detected.

B - Compound was detected in QC blank.

JX - Reported value less than quantitation limit.

SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 14841002
 Client Sample ID: UST 380

Concentration: LOW
 Sample Matrix: OIL
 Percent Moisture:

Date Extracted: 11/22/89
 Date Analyzed: 12/05/89
 Dilution Factor: 100.0

PNA COMPOUNDS

CAS Number		ug/g		CAS Number		ug/L
91-20-3	Naphthalene	2000	U			
91-57-6	2-Methylnaphthalene . . .	11000				
90-12-0	1-Methylnaphthalene . . .	5100				
208-96-8	Acenaphthylene	2000	U			
83-32-9	Acenaphthene	2000	U			
86-73-7	Fluorene.	2000	U			
85-01-8	Phenanthrene.	2000	U			
120-12-7	Anthracene.	500	U			
206-44-0	Fluoranthene.	500	U			
129-00-0	Pyrene.	500	U			
56-55-3	Benzo(a)anthracene. . . .	500	U			
218-01-9	Chrysene.	500	U			
205-99-2	Benzo(b)fluoranthene . .	500	U			
207-08-9	Benzo(k)fluoranthene . .	500	U			
50-32-8	Benzo(a)pyrene.	500	U			
193-39-5	Indeno(1,2,3-cd)pyrene. .	500	U			
53-70-3	Dibenzo(a,h)anthracene. .	500	U			
191-24-2	Benzo(g,h,i)perylene. . .	500	U			
	Terphenyl-d14 SS	97				

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Comments: Some detection limits were raised due to interferences not removed by silica gel cleanup.

Form I


 000014

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 14841003
 Client Sample ID: UST 380 DUPS

Concentration: LOW
 Sample Matrix: OIL
 Percent Moisture:

Date Extracted: 11/22/89
 Date Analyzed: 12/06/89
 Dilution Factor: 100.0

PNA COMPOUNDS

CAS Number		ug/g		CAS Number	ug/L
91-20-3	Naphthalene	2000	U		
91-57-6	2-Methylnaphthalene . . .	10000			
90-12-0	1-Methylnaphthalene . . .	4500			
208-96-8	Acenaphthylene	2000	U		
83-32-9	Acenaphthene	2000	U		
86-73-7	Fluorene.	2000	U		
85-01-8	Phenanthrene.	2000	U		
120-12-7	Anthracene.	500	U		
206-44-0	Fluoranthene.	500	U		
129-00-0	Pyrene.	500	U		
56-55-3	Benzo(a)anthracene. . . .	500	U		
218-01-9	Chrysene.	500	U		
205-99-2	Benzo(b)fluoranthene . . .	500	U		
207-08-9	Benzo(k)fluoranthene . . .	500	U		
50-32-8	Benzo(a)pyrene.	500	U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	500	U		
53-70-3	Dibenzo(a,h)anthracene. .	500	U		
191-24-2	Benzo(g,h,i)perylene. . .	500	U		
	Terphenyl-d14 SS	96			

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Comments: Some detection limits were raised due to interferences not removed by silica gel cleanup.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 14841004
 Client Sample ID: EQUIP BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/13/89
 Date Analyzed: 12/06/89
 Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	2	U	
91-57-6	2-Methylnaphthalene . . .	2	U	
90-12-0	1-Methylnaphthalene . . .	2	U	
208-96-8	Acenaphthylene	2	U	
83-32-9	Acenaphthene	2	U	
86-73-7	Fluorene	2	U	
85-01-8	Phenanthrene	2	U	
120-12-7	Anthracene	2	U	
206-44-0	Fluoranthene	2	U	
129-00-0	Pyrene	2	U	
56-55-3	Benzo(a)anthracene . . .	2	U	
218-01-9	Chrysene	2	U	
205-99-2	Benzo(b)fluoranthene . .	2	U	
207-08-9	Benzo(k)fluoranthene . .	2	U	
50-32-8	Benzo(a)pyrene	2	U	
193-39-5	Indeno(1,2,3-cd)pyrene . .	2	U	
53-70-3	Dibenzo(a,h)anthracene . .	2	U	
191-24-2	Benzo(g,h,i)perylene . .	2	U	
	Terphenyl-d14 SS	90		

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 11/13/89
 Lab Sample ID: 14841005 Sample Matrix: WATER Date Analyzed: 12/06/89
 Client Sample ID: TRAVEL BLANK Percent Moisture: _____ Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number	ug/L	CAS Number	ug/L
91-20-3	Naphthalene 2 U		
91-57-6	2-Methylnaphthalene . . . 2 U		
90-12-0	1-Methylnaphthalene . . . 2 U		
208-96-8	Acenaphthylene 2 U		
83-32-9	Acenaphthene 2 U		
86-73-7	Fluorene. 2 U		
85-01-8	Phenanthrene. 2 U		
120-12-7	Anthracene. 2 U		
206-44-0	Fluoranthene. 2 U		
129-00-0	Pyrene. 2 U		
56-55-3	Benzo(a)anthracene. . . . 2 U		
218-01-9	Chrysene. 2 U		
205-99-2	Benzo(b)fluoranthene . . 2 U		
207-08-9	Benzo(k)fluoranthene . . 2 U		
50-32-8	Benzo(a)pyrene. 2 U		
193-39-5	Indeno(1,2,3-cd)pyrene. . 2 U		
53-70-3	Dibenzo(a,h)anthracene. . 2 U		
191-24-2	Benzo(g,h,i)perylene. . . 2 U		
	Terphenyl-d14 SS 94		

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: W11139B1
 Client Sample ID: QC BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 11/13/89
 Date Analyzed: 12/05/89
 Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	2 U		
91-57-6	2-Methylnaphthalene . . .	2 U		
90-12-0	1-Methylnaphthalene . . .	2 U		
208-96-8	Acenaphthylene	2 U		
83-32-9	Acenaphthene	2 U		
86-73-7	Fluorene.	2 U		
85-01-8	Phenanthrene.	2 U		
120-12-7	Anthracene.	2 U		
206-44-0	Fluoranthene.	2 U		
129-00-0	Pyrene.	2 U		
56-55-3	Benzo(a)anthracene. . . .	2 U		
218-01-9	Chrysene.	2 U		
205-99-2	Benzo(b)fluoranthene . .	2 U		
207-08-9	Benzo(k)fluoranthene . .	2 U		
50-32-8	Benzo(a)pyrene.	2 U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	2 U		
53-70-3	Dibenzo(a,h)anthracene. .	2 U		
191-24-2	Benzo(g,h,i)perylene. . .	2 U		
	Terphenyl-d14 SS	97		

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

Comments:

Form I


 000018

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 11/22/89
Lab Sample ID: 011229B1 Sample Matrix: OIL Date Analyzed: 12/11/89
Client Sample ID: QC BLANK Percent Moisture: _____ Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number	Compound	ug/g	CAS Number	Compound	ug/L
91-20-3	Naphthalene	5 U			
91-57-6	2-Methylnaphthalene . . .	5 U			
90-12-0	1-Methylnaphthalene . . .	5 U			
208-96-8	Acenaphthylene	5 U			
83-32-9	Acenaphthene	5 U			
86-73-7	Fluorene.	5 U			
85-01-8	Phenanthrene.	5 U			
120-12-7	Anthracene.	5 U			
206-44-0	Fluoranthene.	5 U			
129-00-0	Pyrene.	5 U			
56-55-3	Benzo(a)anthracene. . . .	5 U			
218-01-9	Chrysene.	5 U			
205-99-2	Benzo(b)fluoranthene . .	5 U			
207-08-9	Benzo(k)fluoranthene . .	5 U			
50-32-8	Benzo(a)pyrene.	5 U			
193-39-5	Indeno(1,2,3-cd)pyrene. .	5 U			
53-70-3	Dibenzo(a,h)anthracene. .	5 U			
191-24-2	Benzo(g,h,i)perylene. . .	5 U			
	Terphenyl-d14 SS	109			

- U - Compound analyzed for but not detected.
- B - Compound was detected in QC blank.
- JX - Reported value less than quantitation limit.
- SS - Surrogate Standard reported as percent recovery.

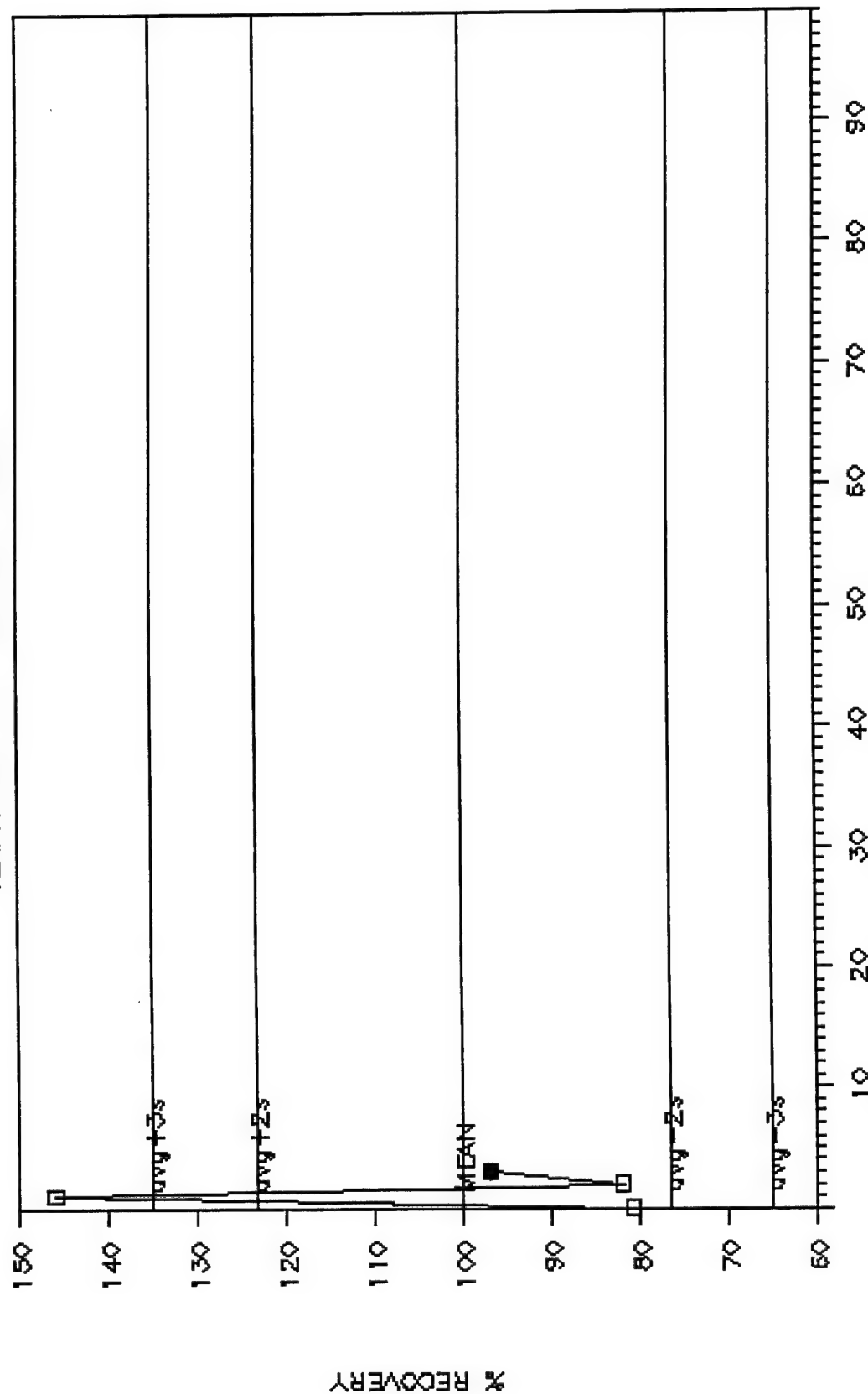
Comments:

Form I

Handwritten Signature
000019

SURROGATE RECOVERY - PNA

TERPHENYL-D14 - WATER - 14541



000020

WATER (Sep.Funnel)

GC PNAs

0

SAMPLE #	DATE	T-D14 SURROGATE % REC.	T-D14		ACCEPT. OUTLIER				COMMENTS
			?	?					

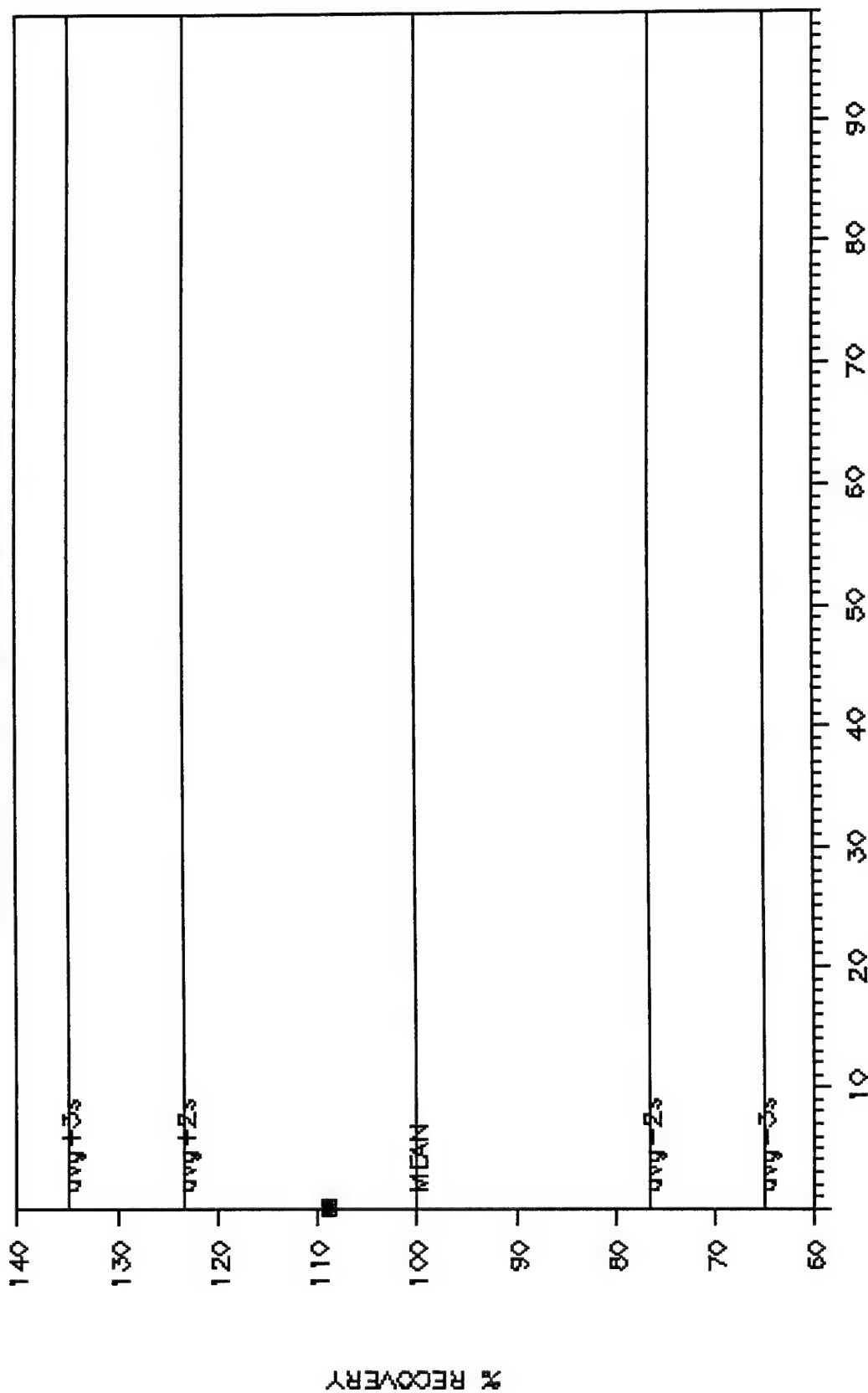
1	W08089B1	8/13/89	81.0	YES	ERR	NO	NO	NO	NO	
2	W10249B1	11/15/89	146.0	NO	ERR	NO	NO	NO	NO	
3	W10269B1	11/15/89	82.0	YES	NO	NO	NO	NO	NO	
4	W11139B1	12/05/89	97.0	YES	NO	NO	NO	NO	NO	

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000021

SURROGATE RECOVERY - PNA

TERPHENYL-D14 - OIL - B.A.N.G 14841



000022

OIL PNAS 0

SAMPLE #	DATE	T-D14 SURROGATE % REC.	T-D14 ACCEPT. OUTLIER ? ?	COMMENTS
----------	------	------------------------------	---------------------------------	----------

YES	ERR	NO	NO	NO	NO
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1	011229B1	12/11/89	109.0		
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000023

REPORT OF ANALYTICAL RESULTS

Date: 12/07/89
 Page: 1 of 5

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 14841
 Date Received: 11/10/89

Sample Description: UST 120 11/9/89 1610 GRAB
 Laboratory Sample Number: 14841001 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW846:1010	64	145	* F	12/01/89
Lead	EPA239.2/SW7421	3	51	ug/L	11/15/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: _____



INORGREP(v891205)

000024

REPORT OF ANALYTICAL RESULTS

Date: 12/07/89
Page: 2 of 5

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Sample Description: UST 380 11/9/89 1510 GRAB

Laboratory Sample Number: 14841002 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW846:1010	64	<=64	° F	12/01/89
Lead	EPA239.2/SW7421	60	509	ug/L	11/15/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INORGREP(v891205)

000025



REPORT OF ANALYTICAL RESULTS

Date: 12/07/89

Page: 3 of 5

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Atten: MR. J.P. MARTIN

Sample Description: UST 380 DUPS 11/9/89 1510 GRAB

Laboratory Sample Number: 14841003 Date Collected: 11/09/89 Matrix: OIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW846:1010	64	<=64	° F	12/01/89
Lead	EPA239.2/SW7421	60	477	ug/L	11/15/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INORGREP (v891205)

000026



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REPORT OF ANALYTICAL RESULTS

Date: 12/07/89
Page: 4 of 5

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Sample Description: EQUIP BLANK 11/9/89 1545 GRAB

Laboratory Sample Number: 14841004 Date Collected: 11/09/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Lead	EPA239.2/SW7421	3	<3	ug/L	11/15/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INORGREP (v891205)

000027

CH2M HILL

Montgomery
Environmental Laboratory

2567 Fairlane Drive, P.O. Box 230548,
Montgomery, Alabama 36116

205.271.1444



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Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 12/07/89

Page: 5 of 5

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UT.FW
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 14841
Date Received: 11/10/89

Sample Description: TRAVEL BLANK 11/8/89 GRAB

Laboratory Sample Number: 14841005 Date Collected: 11/08/89 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW846:1010	64	>212	* F	12/01/89
Lead	EPA239.2/SW7421	3	<3	ug/L	11/15/89

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

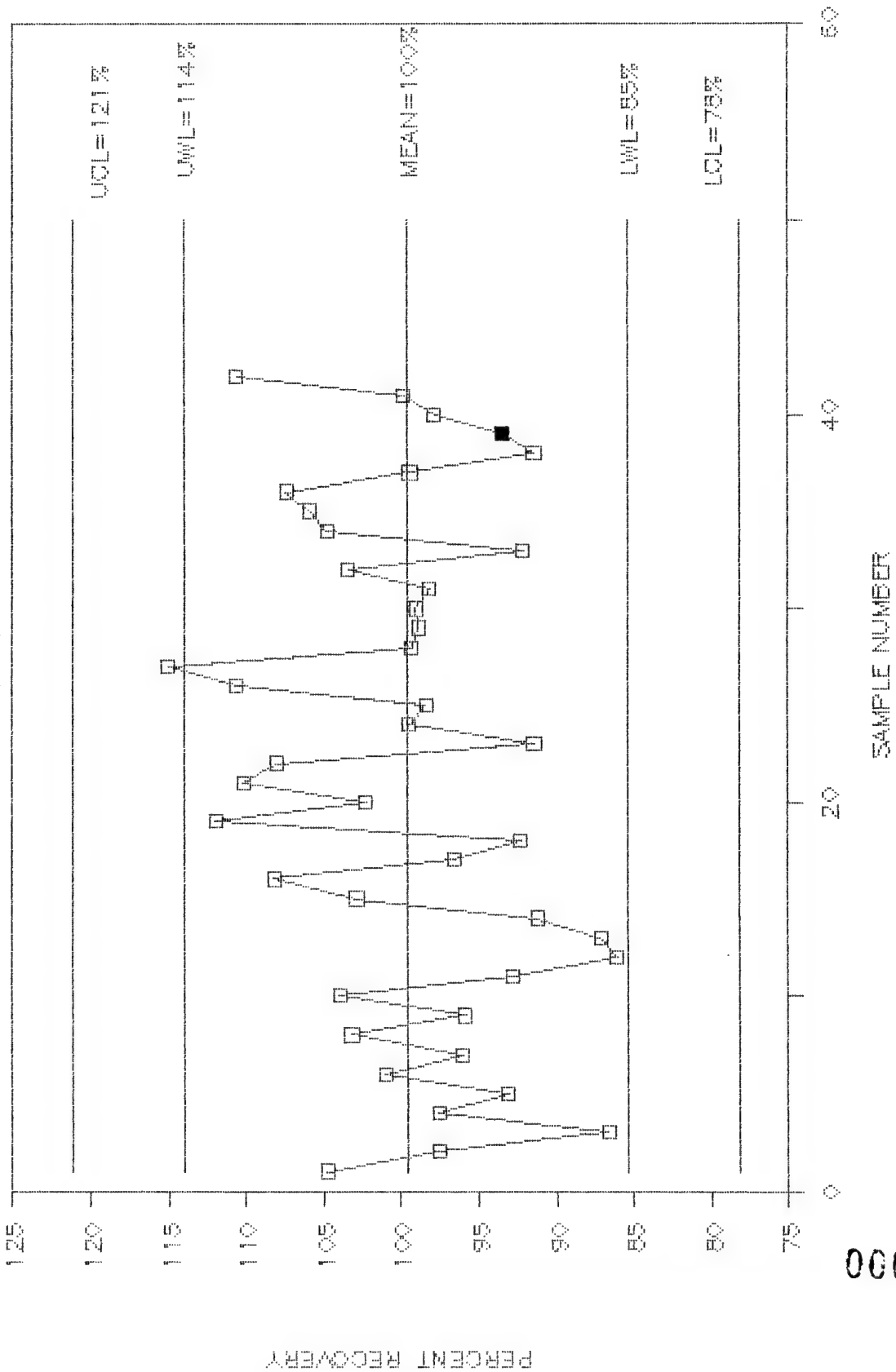
Reviewed by: 

INORGREP(v891205)

000028

LABORATORY CONTROL SAMPLE (WATER) -- LEAD

12/06/99



6200000

SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
12/06/89 WATER MATRIX

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	13902 2AUG89	XXXXXXXXXX	39.16	41.030	104.8
2	14001 9AUG89	XXXXXXXXXX	39.16	38.200	97.5
3	13960 9AUG89	XXXXXXXXXX	39.16	33.940	86.7
4	14077 14AUG89	XXXXXXXXXX	39.16	38.200	97.5
5	14059 14AUG89	XXXXXXXXXX	39.16	36.440	93.1
6	14119 15AUG89	XXXXXXXXXX	39.16	39.550	101.0
7	14119 21AUG89	XXXXXXXXXX	39.16	37.620	96.1
8	14150 21AUG89	XXXXXXXXXX	39.16	40.400	103.2
9	14173 21AUG89	XXXXXXXXXX	39.16	37.530	95.8
10	14177 22AUG89	XXXXXXXXXX	39.16	40.710	104.0
11	14190 23AUG89	XXXXXXXXXX	39.16	36.330	92.8
12	14202 28AUG89	XXXXXXXXXX	39.16	33.720	86.1
13	14232 28AUG89	XXXXXXXXXX	39.16	34.120	87.1
14	14202 29AUG89	XXXXXXXXXX	39.16	35.720	91.2
15	14283 07SEPT89	XXXXXXXXXX	39.16	40.280	102.9
16	14309 08SEPT89	XXXXXXXXXX	39.16	42.370	108.2
17	14325 13SEPT89	XXXXXXXXXX	39.16	37.840	96.6
18	14333 13SEPT89	XXXXXXXXXX	39.16	36.150	92.3
19	14388 19SEPT89	XXXXXXXXXX	39.16	43.850	112.0
20	14362 20SEPT89	XXXXXXXXXX	39.16	40.030	102.2
21	14388 20SEPT89	XXXXXXXXXX	39.16	43.140	110.2
22	14389 20SEPT89	XXXXXXXXXX	39.16	42.290	108.0
23	14391 25SEPT89	XXXXXXXXXX	39.16	35.790	91.4
24	14398 29SEPT89	XXXXXXXXXX	39.16	38.950	99.5
25	14398 02OCT89	XXXXXXXXXX	39.16	38.530	98.4
26	14453 02OCT89	XXXXXXXXXX	39.16	43.310	110.6
27	14479 05OCT89	XXXXXXXXXX	39.16	45.030	115.0
28	14590 09OCT89	XXXXXXXXXX	39.16	38.880	99.3
29	14529 10OCT89	XXXXXXXXXX	39.16	38.730	98.9
30	14583 10OCT89	XXXXXXXXXX	39.16	38.780	99.0
31	14619 17OCT89	XXXXXXXXXX	39.16	38.430	98.1
32	14619 23OCT89	XXXXXXXXXX	39.16	40.480	103.4
33	14715 26OCT89	XXXXXXXXXX	39.16	36.080	92.1
34	14727 06NOV89	XXXXXXXXXX	39.16	41.020	104.7
35	14743 06NOV89	XXXXXXXXXX	39.16	41.450	105.8
36	14718 06NOV89	XXXXXXXXXX	39.16	42.040	107.4
37	14799 08NOV89	XXXXXXXXXX	39.16	38.930	99.4
38	14809 10NOV89	XXXXXXXXXX	39.16	35.790	91.4
39	14837 16NOV89	XXXXXXXXXX	39.16	36.570	93.4
40	14861 20NOV89	XXXXXXXXXX	39.16	38.310	97.8
41	14863 27NOV89	XXXXXXXXXX	39.16	39.070	99.8
42	14921 30NOV89	XXXXXXXXXX	39.16	43.310	110.6
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MEAN RECOVERY = 99.64857
STD(N-1) = 7.163231
2 STD(N-1) = 14.32646
3 STD(N-1) = 21.48969

X X+2S X+3S X-2S X-3S
99.6 114.0 121.1 85.3 78.2
MEAN UWL UCL LWL LCL

000030



TO: PROJECT MANAGER

COPIES: TOM EMENHISER/GNV

FROM: CHARLIE JARMAN/GNV

DATE: 11/29/89

RE: BIRMINGHAM AIR NATIONAL GUARD SAMPLE SET #73036--40

We have completed the Birmingham Air National Guard sample set #73036--40 (MGM #14841 1-5), and the results and requested QA/QC package are included. A number of problems were encountered during the analysis of the these samples, and details are given below.

Sample "UST 120," #73036, had a bright "sheen" on the surface, and it was therefore necessary to run the sample at a 1:10 dilution to avoid contamination by the apparent "free product." A number of non-target peaks were present that could not be identified.

Samples "UST 380" and "UST 380 Dups.," #73037 and #73038, were oily in appearance and odor. These samples could not be treated as simple "water samples," and it was necessary to prepare Methanol extracts to eliminate some of the matrix effects. Even so, pre-analysis screening on an FID indicated that additional dilutions were needed to avoid contamination of the gas chromatography system. The MEOH extracts were diluted 1:50 and 1 ul of the diluted extracts was run for both 73037 and 73038. The resulting dilution was 1:250,000 for each sample, and numerous non-target peaks were present that could not be identified.

No problems were encountered with the other samples.

As directed by Dr. Ann Castelberry, MS/MSD analyses were not performed. The required "Hazwrap Level B Modified" QA/QC package therefore includes a copy of the Initial Calibration, the Continuing Calibration, and Surrogate Control Charts--one for Organic-Free Water Blanks alone and one for all samples, blanks, and MS/MSD. A Quantitation Report for the daily organic-free water blank is also included.

Feel free to contact me directly should you require any additional information.

CH2M Hill Organics Laboratory

Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

Initial Calibration

Continuing Calibration (Daily Standard)

Quantitation Reports for Organic-Free Water Blanks

Matrix Spike/Matrix Spike Duplicate(s)*

Copy of Chain-of-Custody

Chromatogram(s)

(*) Information provided where applicable or when requested.

000032



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SAMPLE INFORMATION

Client: Birmingham Air National Guard
Attention: Kay Autrey
Address: CH2M Hill Montgomery Office

Description: Water
MGM #14841

Sample Number: 73036--40
Quantity: 5
Date Received: 11/10/89
Date Completed: 11/21/89
Date Reported: 11/29/89
Project Number: MGM27232.UT.FW
Number of Pages: 20

The information shown in this report is test data only
and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112. E82124

Respectfully submitted.

Tom Emenhiser
Laboratory Manager

000033

Definitions of Reporting Qualifiers

- (U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Detection Limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- (M) Matrix interference precludes achieving lower detection limit. The detection limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.
- (F) Presence indicated but less than stated detection limit. In a diluted sample, a clearly defined peak was present at less than the stated detection limit.
- (N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples containing none of the listed "target" compounds.

Detection Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum detection limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

000034



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Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples: used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124



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VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 73036
DATE ANALYZED: 11/21/89
DATE COLLECTED: 11/9/89
MATRIX: WATER
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: UST 120

SAMPLE VOLUME: 500 UL (M.N)
DETECTION LIMIT/DILUTION FACTOR: 10.0000
DATE SOIL EXTRACT PREPARED: N/A
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	10 U
74-83-9	Bromomethane	10 U
75-01-4	Vinyl Chloride	10 U
75-00-3	Chloroethane	10 U
75-35-4	1,1-Dichloroethene	10 U
75-09-2	Dichloromethane	10 U
156-60-5	Trans-1,2-Dichloroethene	10 U
75-34-3	1,1-Dichloroethane	10 U
67-66-3	Chloroform	10 U
107-06-2	1,2-Dichloroethane	10 U
71-55-6	1,1,1-Trichloroethane	10 U
56-23-5	Carbon Tetrachloride	10 U
78-87-5	1,2-Dichloropropane	10 U
79-01-6	Trichloroethene	
75-27-4	And Dichlorobromomethane	10 U
10061-01-5	Cis-1,3-Dichloropropene	10 U
10061-02-6	Trans-1,3-Dichloropropene	10 U
79-00-5	1,1,2-Trichloroethane	10 U
124-48-1	Dibromochloromethane	10 U
127-18-4	Tetrachloroethene	10 U
75-25-2	Bromoform	10 U
79-34-5	1,1,2,2-Tetrachloroethane	10 U
74-97-5	BROMOCHLOROMETHANE	105

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	10 U
71-43-2	Benzene	10 U
108-88-3	Toluene	8.8 F
127-18-4	Tetrachloroethene (P)	10 U
108-90-7	Chlorobenzene	10 U
100-41-4	Ethyl Benzene	10 U
	Total Xylenes*	52
541-73-1	1,3-Dichlorobenzene	10 U
106-46-7	1,4-Dichlorobenzene	10 U
95-50-1	1,2-Dichlorobenzene	10 U
98-08-8	A,A,A-TRIFLUOROTOLUENE	89

602 SURR (% REC)

*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)

000036



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Scientists

VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 73037
DATE ANALYZED: 11/21/89
DATE COLLECTED: 11/9/89
MATRIX: ~~WATER~~ OIL ~~with~~
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: UST 380
MGM#14841-2
SAMPLE VOLUME: 1 UL OF 1:50 MEOH EXTRACT (M.N)
DETECTION LIMIT/DILUTION FACTOR: 250000.0000
DATE SOIL EXTRACT PREPARED: 11/19/89
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	250,000
74-83-9	Bromomethane	250,000
75-01-4	Vinyl Chloride	250,000
75-00-3	Chloroethane	250,000
75-35-4	1,1-Dichloroethene	250,000
75-09-2	Dichloromethane	250,000
156-60-5	Trans-1,2-Dichloroethene	250,000
75-34-3	1,1-Dichloroethane	250,000
67-66-3	Chloroform	250,000
107-06-2	1,2-Dichloroethane	250,000
71-55-6	1,1,1-Trichloroethane	250,000
56-23-5	Carbon Tetrachloride	250,000
78-87-5	1,2-Dichloropropane	250,000
79-01-6	Trichloroethene	250,000
75-27-4	And Dichlorobromomethane	250,000
10061-01-5	Cis-1,3-Dichloropropene	250,000
10061-02-6	Trans-1,3-Dichloropropene	250,000
79-00-5	1,1,2-Trichloroethane	250,000
124-48-1	Dibromochloromethane	250,000
127-18-4	Tetrachloroethene	250,000
75-25-2	Bromoform	250,000
79-34-5	1,1,2,2-Tetrachloroethane	250,000
74-97-5	BROMOCHLOROMETHANE	105

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	250,000
71-43-2	Benzene	250,000
108-88-3	Toluene	250,000
127-18-4	Tetrachloroethene (P)	250,000
108-90-7	Chlorobenzene	250,000
100-41-4	Ethyl Benzene	250,000
	Total Xylenes*	6,300,000
541-73-1	1,3-Dichlorobenzene	250,000
106-46-7	1,4-Dichlorobenzene	250,000
95-50-1	1,2-Dichlorobenzene	250,000
98-08-8	A,A,A-TRIFLUOROTOLUENE	98

602 SURR (% REC)

*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)

000037



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VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 73038
DATE ANALYZED: 11/20/89
DATE COLLECTED: 11/9/89
MATRIX: WATER OIL WAX
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: UST 380 DUPS.
MGM#14841-3
SAMPLE VOLUME: 1UL OF 1:50 MEOH EXTRACT (M.N)
DETECTION LIMIT/DILUTION FACTOR: 250000.0000
DATE SOIL EXTRACT PREPARED: 11/19/89
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	250,000
74-83-9	Bromomethane	250,000
75-01-4	Vinyl Chloride	250,000
75-00-3	Chloroethane	250,000
75-35-4	1,1-Dichloroethene	250,000
75-09-2	Dichloromethane	250,000
156-60-5	Trans-1,2-Dichloroethene	250,000
75-34-3	1,1-Dichloroethane	250,000
67-66-3	Chloroform	250,000
107-06-2	1,2-Dichloroethane	250,000
71-55-6	1,1,1-Trichloroethane	250,000
56-23-5	Carbon Tetrachloride	250,000
78-87-5	1,2-Dichloropropane	250,000
79-01-6	Trichloroethene	250,000
75-27-4	And Dichlorobromomethane	250,000
10061-01-5	Cis-1,3-Dichloropropene	250,000
10061-02-6	Trans-1,3-Dichloropropene	250,000
79-00-5	1,1,2-Trichloroethane	250,000
124-48-1	Dibromochloromethane	250,000
127-18-4	Tetrachloroethene	250,000
75-25-2	Bromoform	250,000
79-34-5	1,1,2,2-Tetrachloroethane	250,000
74-97-5	BROMOCHLOROMETHANE	96

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	250,000
71-43-2	Benzene	250,000
108-88-3	Toluene	250,000
127-18-4	Tetrachloroethene (P)	250,000
108-90-7	Chlorobenzene	250,000
100-41-4	Ethyl Benzene	250,000
	Total Xylenes*	5,900,000
541-73-1	1,3-Dichlorobenzene	250,000
106-46-7	1,4-Dichlorobenzene	250,000
95-50-1	1,2-Dichlorobenzene	250,000
98-08-8	A.A.A-TRIFLUOROTOLUENE	101

602 SURR (% REC)

*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)

000038



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VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 73039
DATE ANALYZED: 11/20/89
DATE COLLECTED: 11/9/89
MATRIX: WATER
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: EQUIP. BLANKS
MGM#14841-4
SAMPLE VOLUME: 5ML
DETECTION LIMIT/DILUTION FACTOR: 1.0000
DATE SOIL EXTRACT PREPARED: N/A
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	1.0 U
74-83-9	Bromomethane	1.0 U
75-01-4	Vinyl Chloride	1.0 U
75-00-3	Chloroethane	1.0 U
75-35-4	1,1-Dichloroethene	1.0 U
75-09-2	Dichloromethane	2.9
156-60-5	Trans-1,2-Dichloroethene	1.0 U
75-34-3	1,1-Dichloroethane	1.0 U
67-66-3	Chloroform	1.0 U
107-06-2	1,2-Dichloroethane	1.0 U
71-55-6	1,1,1-Trichloroethane	1.0 U
56-23-5	Carbon Tetrachloride	1.0 U
78-87-5	1,2-Dichloropropane	1.0 U
79-01-6	Trichloroethene	
75-27-4	And Dichlorobromomethane	1.0 U
10061-01-5	Cis-1,3-Dichloropropene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.0 U
79-00-5	1,1,2-Trichloroethane	1.0 U
124-48-1	Dibromochloromethane	1.0 U
127-18-4	Tetrachloroethene	1.0 U
75-25-2	Bromoform	1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	1.0 U
74-97-5	BROMOCHLOROMETHANE	99

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	1.0 U
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
127-18-4	Tetrachloroethene (P)	1.0 U
108-90-7	Chlorobenzene	1.0 U
100-41-4	Ethyl Benzene	1.0 U
	Total Xylenes*	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
98-08-8	A,A,A-TRIFLUOROTOLUENE	97

602 SURR (% REC)

*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)

000039



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VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 73040
DATE ANALYZED: 11/20/89
DATE COLLECTED: 11/8/89
MATRIX: WATER
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: TRAVEL BLANKS
MGM#14841-5

SAMPLE VOLUME: 5ML
DETECTION LIMIT/DILUTION FACTOR: 1.0000
DATE SOIL EXTRACT PREPARED: N/A
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	1.0 U
74-83-9	Bromomethane	1.0 U
75-01-4	Vinyl Chloride	1.0 U
75-00-3	Chloroethane	1.0 U
75-35-4	1,1-Dichloroethene	1.0 U
75-09-2	Dichloromethane	1.0 U
156-60-5	Trans-1,2-Dichloroethene	1.0 U
75-34-3	1,1-Dichloroethane	1.0 U
67-66-3	Chloroform	1.0 U
107-06-2	1,2-Dichloroethane	1.0 U
71-55-6	1,1,1-Trichloroethane	1.0 U
56-23-5	Carbon Tetrachloride	1.0 U
78-87-5	1,2-Dichloropropane	1.0 U
79-01-6	Trichloroethene	
75-27-4	And Dichlorobromomethane	1.0 U
10061-01-5	Cis-1,3-Dichloropropene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.0 U
79-00-5	1,1,2-Trichloroethane	1.0 U
124-48-1	Dibromochloromethane	1.0 U
127-18-4	Tetrachloroethene	1.0 U
75-25-2	Bromoform	1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	1.0 U
74-97-5	BROMOCHLOROMETHANE	103

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	1.0 U
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
127-18-4	Tetrachloroethene (P)	1.0 U
108-90-7	Chlorobenzene	1.0 U
100-41-4	Ethyl Benzene	1.0 U
	Total Xylenes*	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
98-08-8	A,A,A-TRIFLUOROTOLUENE	97

602 SURR (% REC)

*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)

000040

VOA INITIAL CALIBRATION FORM
GC#1/D8-1 MEGABORE CAPILLARY
STANDARD: STOCK
FILE NAME: 11C1004A
DATE: 10/4/89

COMPOUND NAME	RF 5 PPB	RF 20 PPB	RF 50 PPB	RF 100 PPB	RF 200 PPB	AVERAGE RF	STD DEV (N-1)	% RSD	XRSD MUST BE <30 USE AV RF IF XRSD<20
CH3CL	7.2090	9.2721	10.1298	9.2785	7.4117	8.4602	1.2407	14.6652	
VINYL CL	1.9634	1.8442	2.0387	1.8117	1.6694	1.8655	0.1426	7.6462	
CH3BR	2.2357	2.1399	2.2947	2.2407	1.9877	2.1417	0.1476	6.8900	
CL ETHANE	1.9493	1.6718	1.9985	2.4682	2.5507	2.1277	0.3712	17.4477	
1,1-DCE=	0.8225	0.7337	0.7335	0.7013	0.6525	0.7287	0.0620	8.5130	
DCM	0.7623	0.6584	0.7028	0.6677	0.6807	0.6944	0.0415	5.9709	
T-12-DCE=	0.6207	0.5496	0.5726	0.5304	0.4922	0.5531	0.0479	8.6638	
1,1-DCE	0.7050	0.5955	0.6071	0.5547	0.5324	0.5989	0.0665	11.1088	
CHCL3	0.4681	0.4218	0.4510	0.4069	0.3972	0.4290	0.0298	6.9570	
1,2-DCE	0.7124	0.6039	0.5933	0.5295	0.4893	0.5857	0.0850	14.5105	
1,1,1-TCE	0.7418	0.6645	0.5695	0.6480	0.6105	0.6469	0.0645	9.9711	
CCL4	0.5442	0.5086	0.5411	0.5154	0.4834	0.5186	0.0251	4.8358	
1,2-DCP	0.6892	0.6032	0.6111	0.5231	0.4923	0.5838	0.0779	13.3499	
TCE=DCBM	0.6730	0.6237	0.6381	0.5089	0.5249	0.6337	0.0243	3.8292	
C-13DCP=	0.6983	0.5835	0.5748	0.5110	0.4623	0.5660	0.0890	15.7228	
T-12DCP=	0.7374	0.6149	0.6006	0.5036	0.4834	0.5880	0.1016	17.2730	
112TCE	0.5902	0.4695	0.4847	0.4213	0.4320	0.4777	0.0629	13.1730	
DBCM	0.8295	0.7428	0.7725	0.5567	0.6179	0.7237	0.0858	11.8533	
1122TCE=	0.5489	0.4929	0.4983	0.4605	0.4451	0.4891	0.0401	8.1909	
CL BENZ (H)	1.3845	1.3916	1.4119	1.1517	1.0615	1.2802	0.1620	12.6521	USE XRSD FROM PID
CHBR3	1.0266	1.0078	0.9743	0.9374	0.8587	0.9510	0.0743	7.8085	
1122TCE	0.8169	0.7363	0.6892	0.5559	0.5784	0.6773	0.1064	15.7102	
1,3-DCB (H)	0.9485	0.8606	0.8560	0.7788	0.6924	0.8177	0.1045	12.7760	USE XRSD FROM PID
1,4-DCB (H)	0.7942	0.6858	0.6956	0.6151	0.5191	0.6843	0.0703	10.2750	USE XRSD FROM PID
1,2-DCB (H)	0.9638	0.8902	0.8621	0.7891	0.6646	0.8157	0.1288	15.7840	USE XRSD FROM PID
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VINYL CL (P)	0.0000	35.3342	39.1558	31.6585	28.1475	26.4976	15.5661	58.7453	USE XRSD FROM HALL
11-DCE= (P)	7.7781	6.4983	6.5702	6.1707	5.8294	6.5892	0.7371	11.2205	USE XRSD FROM HALL
T-12-DCE= (P)	2.4829	2.2868	2.3848	2.2951	2.1687	2.3056	0.1294	5.6103	USE XRSD FROM HALL
TERT-BME (B)	14.0123	10.8516	9.9784	10.7079	11.2504	11.0801	1.6694	15.0670	
BENZENE	1.8995	1.6481	1.7475	1.6079	1.5363	1.6879	0.1408	8.3421	
TCE= (P)	3.2972	2.8386	2.6828	2.6781	2.5410	2.8075	0.2933	10.4472	USE XRSD FROM HALL
C-13DCP= (P)	9.4866	7.2540	6.9906	5.4765	5.2430	6.8701	1.7017	24.7701	USE XRSD FROM HALL
T-13DCP= (P)	6.2284	4.7591	4.3259	3.7577	3.5550	4.5472	1.0398	22.8665	
TOLUENE	2.0624	1.8265	1.8012	1.6957	1.5907	1.7955	0.1760	9.8037	
1122TCE= (P)	4.9322	3.8760	3.7758	3.5461	3.2928	3.8846	0.6273	16.1496	USE XRSD FROM HALL
CL BENZ	1.9451	1.6278	1.6393	1.4997	1.4992	1.6422	0.1822	11.0918	
ETHYL BENZ	2.3362	1.9933	2.1197	1.8115	1.7969	2.0215	0.2154	10.6534	
MP-XYLENE (B)	1.7638	1.6992	1.8164	1.7454	1.7464	1.7548	0.0420	2.3961	
O-XYLENE (B)	2.1034	1.8217	1.7985	1.6572	1.6700	1.8034	0.1875	10.3977	
1,3-DCB	2.1453	1.8070	1.8359	1.6950	1.5429	1.7853	0.2385	13.3597	
1,4-DCB	2.1129	1.8195	1.8441	1.6536	1.5576	1.7925	0.2168	12.0968	
1,2-DCB	2.7758	2.2786	2.2064	1.9570	1.8468	2.2129	0.3608	16.3039	

(H) DETECTED ON HALL DETECTOR; QUANTITATION FROM PID
(P) DETECTED ON PID; QUANTITATION FROM HALL DETECTOR
(B) INCLUDED FOR BTX; NOT ON 602/8020 LIST

000041

CONTINUING CALIBRATION FORM
GC#1/DB-1 MEGABORE

INIT CAL: 10/04/89
DATE: 11/20/89
FILE NAME: 10011208

COMPOUND NAME	AVERAGE RF	RF 20 PPB	METHOD %D LIMITS #	RRT MINS	
CH3CL	3.4602	13.0289	54.0018	41	0.1660
VINYL CL	1.8655	2.0385	9.2728	32	0.2010
CH3BR	2.1417	1.8094	15.5155	42	0.2510
CL ETHANE	2.1277	1.6859	20.7630	23	0.2770
1,1-DCE=	0.7287	0.6214	14.7320	37	0.4000
DCM	0.6944	0.6111	11.9929	23	0.4130
T-12-DCE=	0.5531	0.4872	11.9124	36	0.4710
1,1-DCE	0.5989	0.4985	16.7766	16	0.4820
CHCL3	0.4290	0.3572	16.7290	25	0.5510
1,2-DCE	0.5857	0.5281	9.8399	29	0.5910
1,1,1-TCE	0.6469	0.5512	14.7872	29	0.6040
DCL4	0.5186	0.4277	17.5170	32	0.6380
1,2-DCP	0.5838	0.4994	14.4528	26	0.6750
TCE=/DCBM	0.6337	0.5453	13.9612	24	0.6880
C-13DCP=	0.5660	0.4878	13.8201	36	0.7370
T-13DCP=	0.5880	0.5061	13.9221	36	0.7670
112TCE	0.4777	0.4074	14.6995	22	0.7760
DBCM	0.7237	0.6284	13.1673	35	0.8160
1122TCE=	0.4891	0.3898	20.3130	30	0.8590
CL BENZ	1.2802	1.0877	15.0403	28	0.9010
CHBR3	0.9510	0.8345	12.2513	27	0.9410
1122TCE	0.6773	0.5700	15.8431	51	0.9680
1,3-DCB	0.8177	0.7068	13.5593	28	1.1080
1,4-DCB	0.6843	0.5881	14.0482	31	1.1130
1,2-DCB	0.8157	0.7158	12.2500	32	1.1420
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VINYL CL	26.4976	0.0000	100.0000	ND	0.0000
1,1-DCE=	6.5692	6.2894	4.2589	ND	0.3990
T-12-DCE=	2.3056	1.9160	16.8995	ND	0.4710
TERT-BME	11.0801	9.9838	9.8947	ND	0.4890
BENZENE	1.6879	1.4307	15.2388	23	0.6290
TCE=	2.8075	2.5570	8.9239	ND	0.6880
C-13DCP=	6.8701	7.1961	4.7446	ND	0.7370
T-13DCP=	4.5472	4.2623	6.2643	ND	0.7670
TOLUENE	1.7955	1.5004	16.4357	23	0.7920
1122TCE=	3.8846	3.3869	12.8107	ND	0.8590
CL BENZ	1.6422	1.3992	14.7957	20	0.9010
ETH BENZ	2.0215	1.7794	11.9777	37	0.9260
MP-XYLENE	1.7548	1.4731	16.0557	ND	0.9380
O-XYLENE	1.8034	1.6620	7.8402	ND	0.9690
1,3-DCB	1.7853	1.5955	10.6334	28	1.1080
1,4-DCB	1.7925	1.5547	13.2674	31	1.1130
1,2-DCB	2.2129	2.0870	5.6902	32	1.1420

* ND=NOT DETERMINED FOR NON 601/602 COMPOUNDS AND
601 COMPOUNDS RESPONDING ON PID

000042



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VOA SAMPLE REPORT FORM GC#1/DB-1 MEGABORE COLUMN

GNV SAMPLE #: 1VB1120A
DATE ANALYZED: 11/20/89
DATE COLLECTED: 11/20/89
MATRIX: WATER
ANALYSIS: 601/602
UNITS: UG/L
CLIENT: BIRMINGHAM AIR NATIONAL GUARD
DESCRIPTION: OFW BLANK

SAMPLE VOLUME: 5ML
DETECTION LIMIT/DILUTION FACTOR: 1.0000
DATE SOIL EXTRACT PREPARED: N/A
% MOISTURE: N/A

CAS NUMBER	PURGEABLE HALOCARBONS	UG/L
74-87-3	Chloromethane	1.0 U
74-83-9	Bromomethane	1.0 U
75-01-4	Vinyl Chloride	1.0 U
75-00-3	Chloroethane	1.0 U
75-35-4	1,1-Dichloroethene	1.0 U
75-09-2	Dichloromethane	1.0 U
156-60-5	Trans-1,2-Dichloroethene	1.0 U
75-34-3	1,1-Dichloroethane	1.0 U
67-66-3	Chloroform	1.0 U
107-06-2	1,2-Dichloroethane	1.0 U
71-55-6	1,1,1-Trichloroethane	1.0 U
56-23-5	Carbon Tetrachloride	1.0 U
78-87-5	1,2-Dichloropropane	1.0 U
79-01-6	Trichloroethene	
75-27-4	And Dichlorobromomethane	1.0 U
10061-01-5	Cis-1,3-Dichloropropene	1.0 U
10061-02-6	Trans-1,3-Dichloropropene	1.0 U
79-00-5	1,1,2-Trichloroethane	1.0 U
124-48-1	Dibromochloromethane	1.0 U
127-18-4	Tetrachloroethene	1.0 U
75-25-2	Bromoform	1.0 U
79-34-5	1,1,2,2-Tetrachloroethane	1.0 U
74-97-5	BROMOCHLOROMETHANE	89

601 SURR (% REC)

CAS NUMBER	PURGEABLE AROMATICS	
1634-04-4	Tert-Butyl Methyl Ether	1.0 U
71-43-2	Benzene	1.0 U
108-88-3	Toluene	1.0 U
127-18-4	Tetrachloroethene (P)	1.0 U
108-90-7	Chlorobenzene	1.0 U
100-41-4	Ethyl Benzene	1.0 U
	Total Xylenes*	1.0 U
541-73-1	1,3-Dichlorobenzene	1.0 U
106-46-7	1,4-Dichlorobenzene	1.0 U
95-50-1	1,2-Dichlorobenzene	1.0 U
98-08-8	A,A,A-TRIFLUOROTOLUENE	95

602 SURR (% REC)

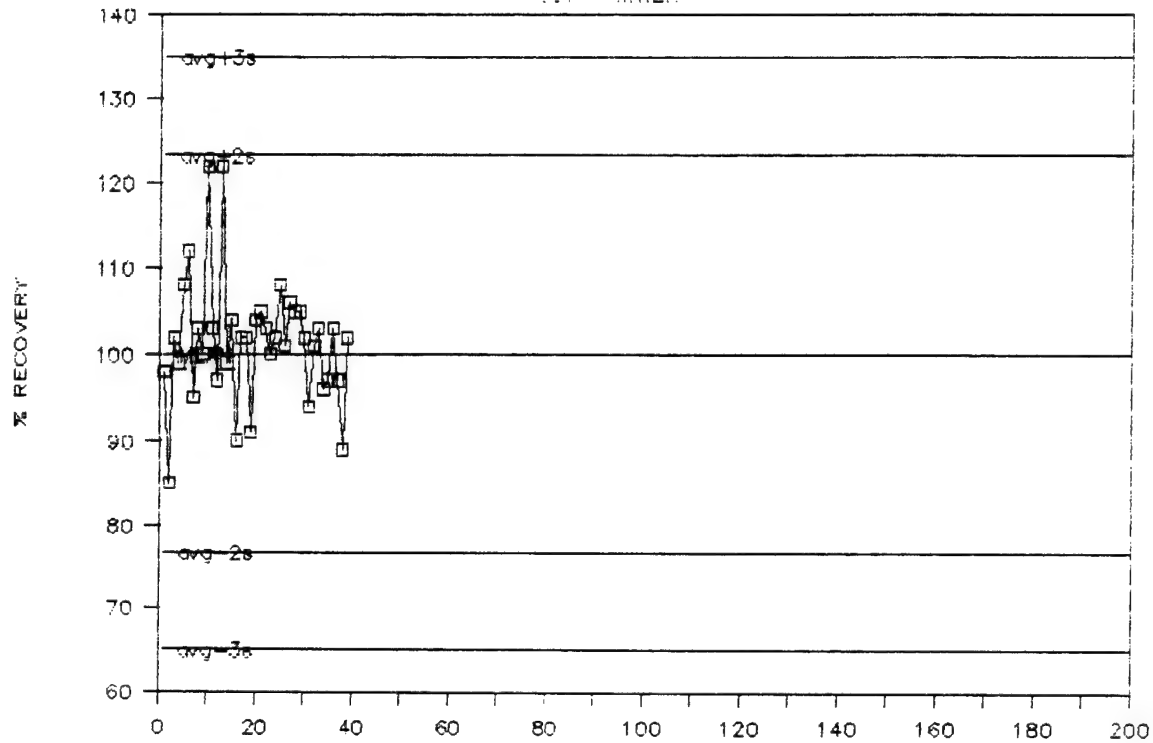
*o-Xylene (95-47-6), m-Xylene (108-38-3), and p-Xylene (106-42-3)



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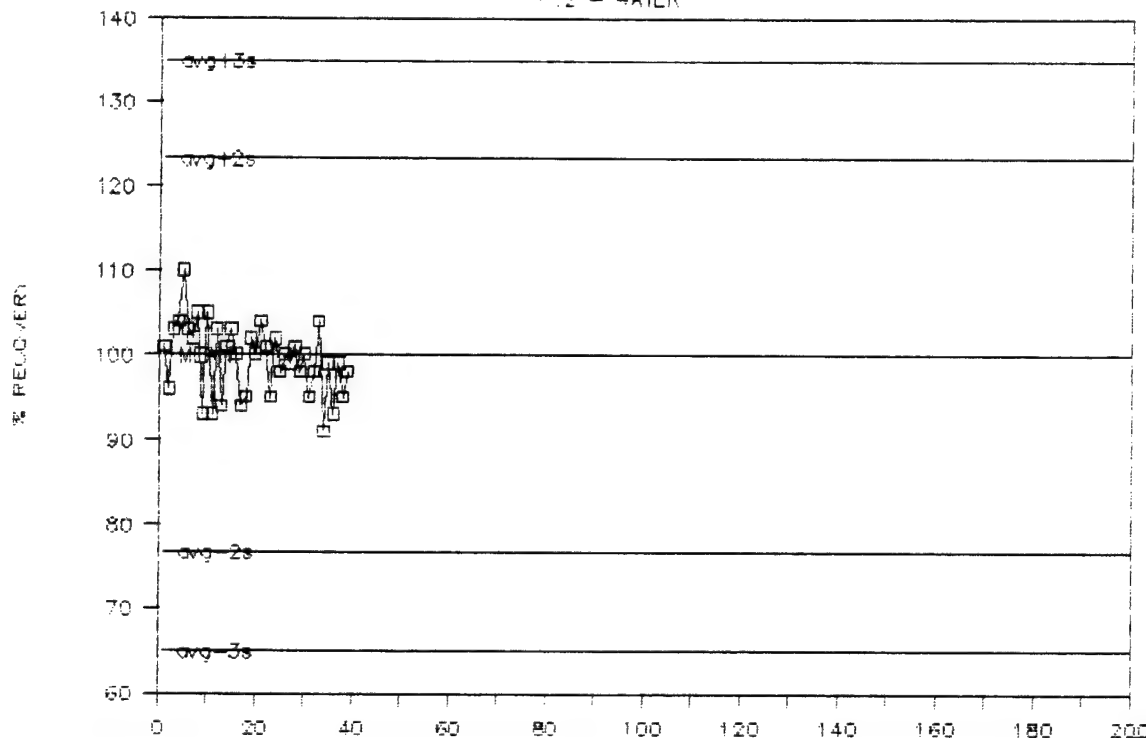
SURROGATE RECOVERY

001 - WATER



SURROGATE RECOVERY

002 - WATER





FILE # DATE

601
SURROGATE
% REC.602
SURROGATE
% REC.601
ACCEPTABLE? OUTLIER?602
ACCEPTABLE? OUTLIER?

COMMENTS

1	1VB1013C	10/13/89	98.0	101.0	YES	ERR	YES	ERR
2	2VB1013A	10/13/89	85.0	96.0	YES	ERR	YES	ERR
3	2VB1013B	10/13/89	102.0	103.0	YES	NO	YES	NO
4	1VB1016A	10/16/89	99.0	104.0	YES	NO	YES	NO
5	2VB1016A	10/16/89	108.0	110.0	YES	NO	YES	NO
6	2VB1016B	10/16/89	112.0	103.0	YES	NO	YES	NO
7	1VB1017A	10/17/89	95.0	102.0	YES	NO	YES	NO
8	2VB1017A	10/17/89	103.0	105.0	YES	NO	YES	NO
9	1VB1018A	10/18/89	100.0	93.0	YES	NO	YES	NO
10	2VB1018A	10/18/89	122.0	105.0	YES	NO	YES	NO
11	1VB1019A	10/19/89	103.0	93.0	YES	NO	YES	NO
12	2VB1020A	10/20/89	97.0	103.0	YES	NO	YES	NO
13	1VB1022A	10/22/89	122.0	94.0	YES	NO	YES	NO
14	1VB1022B	10/22/89	99.0	101.0	YES	NO	YES	NO
15	1VB1023A	10/23/89	104.0	103.0	YES	NO	YES	NO
16	1VB1024A	10/24/89	90.0	100.0	YES	NO	YES	NO
17	1VB1025A	10/25/89	102.0	94.0	YES	NO	YES	NO
18	1VB1025B	10/25/89	102.0	95.0	YES	NO	YES	NO
19	2VB1025A	10/25/89	91.0	102.0	YES	NO	YES	NO
20	1VB1026A	10/26/89	104.0	100.0	YES	NO	YES	NO
21	1VB1027A	10/27/89	105.0	104.0	YES	NO	YES	NO
22	1VB1030A	10/30/89	103.0	101.0	YES	NO	YES	NO
23	1VB1030C	10/30/89	100.0	95.0	YES	NO	YES	NO
24	1VB1031A	10/31/89	102.0	102.0	YES	NO	YES	NO
25	2VB1031A	10/31/89	108.0	98.0	YES	NO	YES	NO
26	1VB1101A	11/01/89	101.0	100.0	YES	NO	YES	NO
27	1VB1101B	11/01/89	106.0	99.0	YES	NO	YES	NO
28	2VB1108A	11/08/89	105.0	101.0	YES	NO	YES	NO
29	1VB1109A	11/09/89	105.0	98.0	YES	NO	YES	NO
30	2VB1109A	11/09/89	102.0	100.0	YES	NO	YES	NO
31	1VB1116A	11/16/89	94.0	95.0	YES	NO	YES	NO
32	1VB1117A	11/17/89	101.0	98.0	YES	NO	YES	NO
33	2VB1117A	11/17/89	103.0	104.0	YES	NO	YES	NO
34	1VB1118A	11/18/89	96.0	91.0	YES	NO	YES	NO
35	2VB1118A	11/18/89	97.0	99.0	YES	NO	YES	NO
36	1VB1119A	11/19/89	103.0	93.0	YES	NO	YES	NO
37	2VB1119B	11/19/89	97.0	99.0	YES	NO	YES	NO
38	1VB1120A	11/20/89	89.0	95.0	YES	NO	YES	NO
39	2VB1120B	11/20/89	102.0	98.0	YES	NO	YES	NO
40								
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CH2M HILL

Gainesville
Environmental Laboratory7201 N.W. 11th Place.
Gainesville, Florida 32605304 331 2442
FAX 904 331 5320

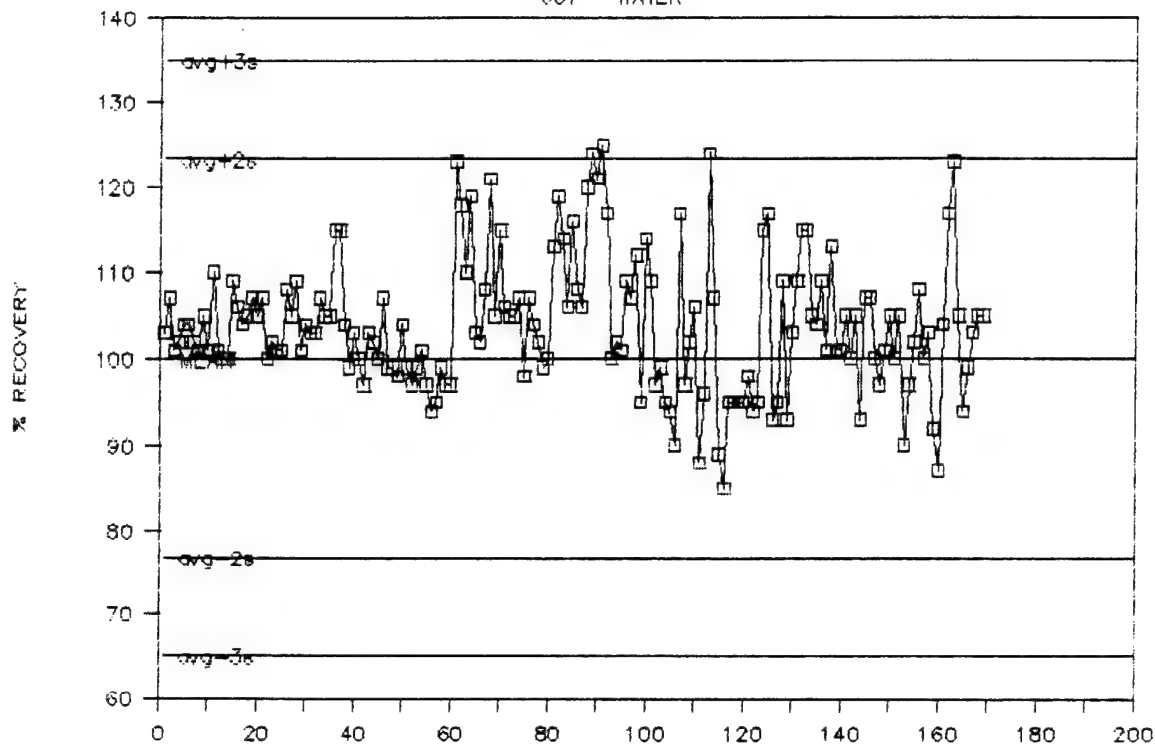
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Engineers
Planners
Economists
Scientists

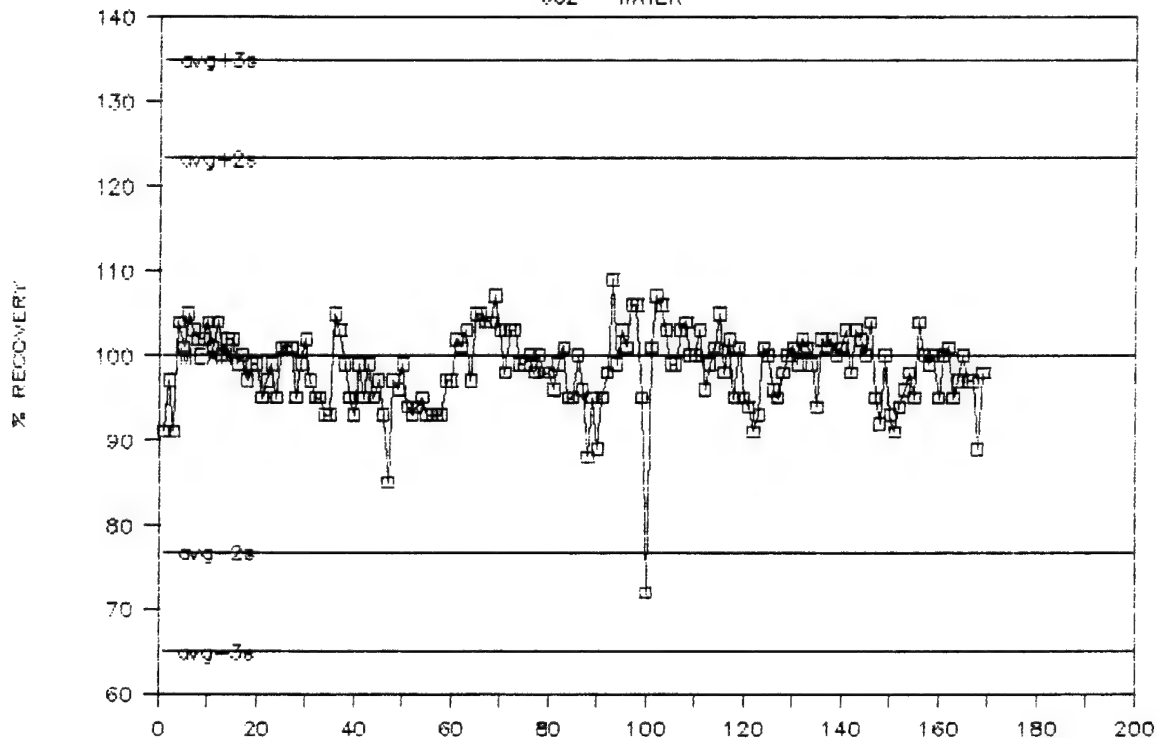
SURROGATE RECOVERY

601 - WATER



SURROGATE RECOVERY

602 - WATER





PLE DATE

601 SUBROGATE % REC.	602 SUBROGATE % REC.	601 ACCEPTABLE?	601 OUTLIER?	602 ACCEPTABLE?	602 OUTLIER?	COMMENTS
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1 72321	11/24/89	103.0	91.0	YES	NO	YES	NO
2 72322	11/24/89	107.0	97.0	YES	NO	YES	NO
3 72323	11/24/89	101.0	91.0	YES	NO	YES	NO
4 72338	10/25/89	102.0	104.0	YES	NO	YES	NO
5 72339	10/25/89	104.0	101.0	YES	NO	YES	NO
6 72340	10/25/89	104.0	105.0	YES	NO	YES	NO
7 72343	10/25/89	102.0	103.0	YES	NO	YES	NO
8 72344	10/25/89	101.0	102.0	YES	NO	YES	NO
9 72345	10/25/89	105.0	102.0	YES	NO	YES	NO
10 72346	10/25/89	101.0	104.0	YES	NO	YES	NO
11 72347	10/25/89	110.0	101.0	YES	NO	YES	NO
12 72350	10/25/89	101.0	104.0	YES	NO	YES	NO
13 72341	10/26/89	100.0	100.0	YES	NO	YES	NO
14 72342	10/26/89	100.0	102.0	YES	NO	YES	NO
15 72362	10/26/89	109.0	102.0	YES	NO	YES	NO
16 72363	10/26/89	108.0	99.0	YES	NO	YES	NO
17 72402	10/26/89	104.0	100.0	YES	NO	YES	NO
18 72403	10/26/89	105.0	97.0	YES	NO	YES	NO
19 72404	10/26/89	107.0	99.0	YES	NO	YES	NO
20 72406	10/26/89	105.0	99.0	YES	NO	YES	NO
21 72409	10/26/89	107.0	95.0	YES	NO	YES	NO
22 72410	10/26/89	100.0	97.0	YES	NO	YES	NO
23 72412	10/26/89	102.0	99.0	YES	NO	YES	NO
24 72413	10/26/89	101.0	95.0	YES	NO	YES	NO
25 72402	10/27/89	101.0	101.0	YES	NO	YES	NO
26 72402MSD	10/27/89	108.0	101.0	YES	NO	YES	NO
27 72405	10/27/89	105.0	101.0	YES	NO	YES	NO
28 72414	10/27/89	109.0	95.0	YES	NO	YES	NO
29 72414MS	10/27/89	101.0	99.0	YES	NO	YES	NO
30 72414MSD	10/27/89	104.0	102.0	YES	NO	YES	NO
31 72415	10/27/89	103.0	97.0	YES	NO	YES	NO
32 72416	10/27/89	103.0	95.0	YES	NO	YES	NO
33 72417	10/27/89	107.0	95.0	YES	NO	YES	NO
34 72418	10/27/89	105.0	93.0	YES	NO	YES	NO
35 72419	10/27/89	105.0	93.0	YES	NO	YES	NO
36 72420	10/27/89	115.0	105.0	YES	NO	YES	NO
37 72421	10/27/89	115.0	103.0	YES	NO	YES	NO
38 72437	10/30/89	104.0	99.0	YES	NO	YES	NO
39 72439	10/30/89	99.0	95.0	YES	NO	YES	NO
40 72443	10/30/89	103.0	93.0	YES	NO	YES	NO
41 72422	10/30/89	100.0	99.0	YES	NO	YES	NO
42 72422MS	10/30/89	97.0	95.0	YES	NO	YES	NO
43 72422MSD	10/30/89	103.0	99.0	YES	NO	YES	NO
44 72423	10/30/89	102.0	95.0	YES	NO	YES	NO
45 72424	10/30/89	100.0	97.0	YES	NO	YES	NO
46 72433	10/30/89	107.0	93.0	YES	NO	YES	NO
47 72434	10/30/89	99.0	85.0	YES	NO	YES	NO
48 72407	10/30/89	99.0	97.0	YES	NO	YES	NO
49 72348	10/31/89	98.0	96.0	YES	NO	YES	NO
50 72451	10/31/89	104.0	99.0	YES	NO	YES	NO
51 71985	10/31/89	99.0	94.0	YES	NO	YES	NO
52 72450	10/31/89	97.0	93.0	YES	NO	YES	NO
53 72450MS	10/31/89	99.0	94.0	YES	NO	YES	NO
54 72450MSD	10/31/89	101.0	95.0	YES	NO	YES	NO
55 72447	10/31/89	97.0	93.0	YES	NO	YES	NO
56 72448	10/31/89	94.0	93.0	YES	NO	YES	NO
57 72449	10/31/89	95.0	93.0	YES	NO	YES	NO
58 72509	10/31/89	99.0	93.0	YES	NO	YES	NO
59 72508	10/31/89	97.0	97.0	YES	NO	YES	NO
60 72506	10/31/89	97.0	97.0	YES	NO	YES	NO
61 72484	10/31/89	123.0	102.0	YES	NO	YES	NO
62 72484MS	10/31/89	118.0	101.0	YES	NO	YES	NO
63 72484MSD	10/31/89	110.0	103.0	YES	NO	YES	NO
64 72485	10/31/89	119.0	97.0	YES	NO	YES	NO
65 72486	10/31/89	103.0	105.0	YES	NO	YES	NO
66 72487	10/31/89	102.0	105.0	YES	NO	YES	NO
67 72488	10/31/89	108.0	104.0	YES	NO	YES	NO
68 72490	10/31/89	121.0	104.0	YES	NO	YES	NO
69 72492	10/31/89	105.0	107.0	YES	NO	YES	NO
70 72493	10/31/89	115.0	103.0	YES	NO	YES	NO
71 72468	11/01/89	106.0	98.0	YES	NO	YES	NO

CH2M HILL

 Gainesville
Environmental Laboratory

 7201 N W 11th Place.
Gainesville Florida 32605

 904 331 2442
FAX 904 331 5320

000047



DATE	601 SURROGATE % REC.	602 SURROGATE % REC.	601 ACCEPTABLE?	602 OUTLIER?	601 ACCEPTABLE?	602 OUTLIER?	COMMENTS
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72 72468MS	11/01/89	105.0	103.0	YES	NO		
73 72468MSD	11/01/89	105.0	103.0	YES	NO		
74 72466	11/01/89	107.0	99.0	YES	NO		
75 72469	11/01/89	98.0	99.0	YES	NO		
76 72507	11/01/89	107.0	100.0	YES	NO		
77 72505	11/01/89	104.0	98.0	YES	NO		
78 72560	11/01/89	102.0	100.0	YES	NO		
79 72489	11/01/89	99.0	98.0	YES	NO		
80 72491	11/01/89	100.0	98.0	YES	NO		
81 72706	11/08/89	113.0	96.0	YES	NO		
82 72710	11/08/89	119.0	99.0	YES	NO		
83 72647	11/08/89	114.0	101.0	YES	NO		
84 72647MS	11/08/89	106.0	95.0	YES	NO		
85 72467MSD	11/08/89	116.0	95.0	YES	NO		
86 72468	11/08/89	108.0	100.0	YES	NO		
87 72686	11/08/89	106.0	96.0	YES	NO		
88 72685	11/08/89	120.0	88.0	YES	NO		
89 72683	11/08/89	124.0	95.0	YES	NO		
90 72684	11/08/89	121.0	89.0	YES	NO		
91 72688	11/08/89	125.0	95.0	YES	NO		
92 72650	11/08/89	117.0	98.0	YES	NO		
93 72646	11/09/89	100.0	109.0	YES	NO		
94 72791	11/09/89	102.0	99.0	YES	NO		
95 72791MS	11/09/89	101.0	103.0	YES	NO		
96 72791MSD	11/09/89	109.0	101.0	YES	NO		
97 72703	11/09/89	107.0	106.0	YES	NO		
98 72704	11/09/89	112.0	106.0	YES	NO		
99 72705	11/09/89	95.0	95.0	YES	NO		
100 72790	11/09/89	114.0	72.0	YES	NO		
101 72792	11/09/89	109.0	101.0	YES	NO		
102 72793	11/09/89	97.0	107.0	YES	NO		
103 72649	11/13/89	99.0	106.0	YES	NO		
104 72649	11/13/89	95.0	103.0	YES	NO		
105 72702	11/13/89	94.0	99.0	YES	NO		
106 72649	11/13/89	90.0	99.0	YES	NO		
107 72707	11/13/89	117.0	103.0	YES	NO		
108 72708	11/13/89	97.0	104.0	YES	NO		
109 73017	11/13/89	102.0	100.0	YES	NO		
110 73017MS	11/13/89	106.0	100.0	YES	NO		
111 73017MSD	11/13/89	88.0	103.0	YES	NO		
112 73018	11/13/89	96.0	96.0	YES	NO		
113 73019	11/13/89	124.0	99.0	YES	NO		
114 73020	11/13/89	107.0	101.0	YES	NO		
115 73021	11/13/89	89.0	105.0	YES	NO		
116 73022	11/13/89	85.0	98.0	YES	NO		
117 73024	11/13/89	95.0	102.0	YES	NO		
118 73089	11/17/89	95.0	95.0	YES	NO		
119 73089MS	11/17/89	95.0	101.0	YES	NO		
120 73089MSD	11/17/89	95.0	95.0	YES	NO		
121 73092	11/17/89	98.0	94.0	YES	NO		
122 73093	11/17/89	94.0	91.0	YES	NO		
123 73051	11/17/89	95.0	93.0	YES	NO		
124 73299	11/17/89	115.0	101.0	YES	NO		
125 73300	11/17/89	117.0	100.0	YES	NO		
126 73301	11/17/89	93.0	96.0	YES	NO		
127 73302	11/17/89	95.0	95.0	YES	NO		
128 73115	11/17/89	109.0	98.0	YES	NO		
129 73115MS	11/17/89	93.0	100.0	YES	NO		
130 73115MSD	11/17/89	103.0	101.0	YES	NO		
131 73116	11/17/89	109.0	99.0	YES	NO		
132 73117	11/17/89	115.0	102.0	YES	NO		
133 73118	11/17/89	115.0	101.0	YES	NO		
134 73065	11/18/89	105.0	99.0	YES	NO		
135 73124	11/18/89	104.0	94.0	YES	NO		
136 73120	11/18/89	109.0	102.0	YES	NO		
137 73125	11/18/89	101.0	101.0	YES	NO		
138 73125MS	11/18/89	113.0	102.0	YES	NO		
139 73125MSD	11/18/89	101.0	100.0	YES	NO		
140 73132	11/18/89	101.0	101.0	YES	NO		
141 73128	11/18/89	105.0	103.0	YES	NO		
142 73130	11/18/89	100.0	98.0	YES	NO		

CH2M HILL

Gainesville
Environmental Laboratory7201 N W 11th Place,
Gainesville, Florida 32605904 331 2442
FAX 904 331 5320

000048



DATE

601 SURROGATE % REC.	602 SURROGATE % REC.	601 ACCEPTABLE?	602 OUTLIER?	601 ACCEPTABLE?	602 OUTLIER?
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COMMENTS

143 73131	11/18/89	105.0	103.0	YES	NO
144 73134	11/18/89	93.0	102.0	YES	NO
145 73135	11/18/89	107.0	100.0	YES	NO
146 73121	11/18/89	107.0	104.0	YES	NO
147 73129	11/18/89	100.0	95.0	YES	NO
148 73365	11/18/89	97.0	92.0	YES	NO
149 73365MS	11/18/89	101.0	100.0	YES	NO
150 73365MSD	11/18/89	105.0	93.0	YES	NO
151 73361	11/18/89	100.0	91.0	YES	NO
152 73366	11/18/89	105.0	94.0	YES	NO
153 73133	11/19/89	90.0	96.0	YES	NO
154 73133MS	11/19/89	97.0	98.0	YES	NO
155 73133MSD	11/19/89	102.0	95.0	YES	NO
156 73378	11/19/89	108.0	104.0	YES	NO
157 73378MS	11/19/89	100.0	100.0	YES	NO
158 73378MSD	11/19/89	103.0	99.0	YES	NO
159 73356	11/19/89	92.0	100.0	YES	NO
160 73362	11/19/89	87.0	95.0	YES	NO
161 73376	11/19/89	104.0	100.0	YES	NO
162 73357	11/20/89	117.0	101.0	YES	NO
163 73359	11/20/89	123.0	95.0	YES	NO
164 73362	11/20/89	105.0	97.0	YES	NO
165 73368	11/20/89	94.0	100.0	YES	NO
166 73039	11/20/89	99.0	97.0	YES	NO
167 73040	11/20/89	103.0	97.0	YES	NO
168 73036	11/20/89	105.0	89.0	YES	NO
169 73037	11/20/89	105.0	98.0	YES	NO
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CHAIN OF CUSTODY RECORD

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CHAIN OF CUSTODY RECORD

[illegible]



February 1, 1991

MGM27232.UB.SD

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for BANG, Laboratory No. 17561

Dear Mr. Martin:

On January 10, 1991, the CH2M Hill Montgomery Laboratory received seven samples with a request for analysis of selected parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analysis of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain/MGM
Ms. Mary Wisdom/LMG

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17561

CH2M HILL					
<u>Sample No.</u>	<u>Sample Description</u>				
17561001	SAMPLE TANK-380-N	01/08/91	PM	GRAB	SOIL
17561002	SAMPLE TANK-380-S	01/08/91	PM	GRAB	SOIL
17561003	SAMPLE TANK-380-E	01/08/91	PM	GRAB	SOIL
17561004	SAMPLE TANK-380-W	01/08/91	PM	GRAB	SOIL
17561005	SAMPLE TANK-380-B	01/08/91	PM	GRAB	SOIL
17561006	SAMPLE TANK-380-SP	01/08/91	PM	GRAB	SOIL
17561007	SAMPLE OLD DRUM SOIL	01/10/91	PM	GRAB	SOIL

CASE NARRATIVE
Cations

Batch Number: 17561

Client/Project: MGM/BANG

I. Holding Time:
All holding times were met.

II. Analysis:

- A. Blanks:
All acceptance criteria were met.
- B. Calibration:
All acceptance criteria were met.
- C. ICP Interference Check Sample:
All acceptance criteria were met.
- D. Spike Sample Analysis:
All acceptance criteria were met.
- E. Duplicate Sample Analysis:
All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
All acceptance criteria were met.
- G. ICP Serial Dilution:
Not required for this level QC.
- H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 1 FEB 91

000001

CASE NARRATIVE
General Chemistry

Batch Number: 17561

Client/Project: MGM/BANG

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED:  DATE: 1 FEB 91
Kevin A. Sanders
Inorganic Division Manager

000002



REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: TANK-380-N PM GRAB

Laboratory Sample Number: 17561001 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	9.6	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000003



REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: TANK-380-S PM GRAB

Laboratory Sample Number: 17561002 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.9	2.7	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000004

REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Atten: MR. J. P. MARTIN

Sample Description: TANK-380-E PM GRAB

Laboratory Sample Number: 17561003 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	<2.0	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)



REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: TANK-380-W PM GRAB
Laboratory Sample Number: 17561004 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.9	4.0	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000006

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: TANK-380-B PM GRAB

Laboratory Sample Number: 17561005 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Lead	EPA239.2/SW7421	2.2	30.9	mg/kg	01/16/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.1	5.2	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000007

REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: TANK-380-SP PM GRAB

Laboratory Sample Number: 17561006 Date Collected: 01/08/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NON-IGNITABLE	----	01/31/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	16.8	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000008



REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: OLD DRUM SOIL PM GRAB

Laboratory Sample Number: 17561007 Date Collected: 01/10/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.3	20.1	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000009

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17561ZS1 Date Collected: 01/11/91 Matrix: SOIL BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	01/31/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/16/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.6	<1.6	mg/Kg	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000010



REPORT OF ANALYTICAL RESULTS

Date: 01/31/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17561
Date Received: 01/10/91

Sample Description: BLK SPK/LCS BLANK SPIKE/LCS

Laboratory Sample Number: 17561B08 Date Collected: 01/11/91 Matrix: SOIL BLK SPK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	01/31/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	----	100.6	%REC	01/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

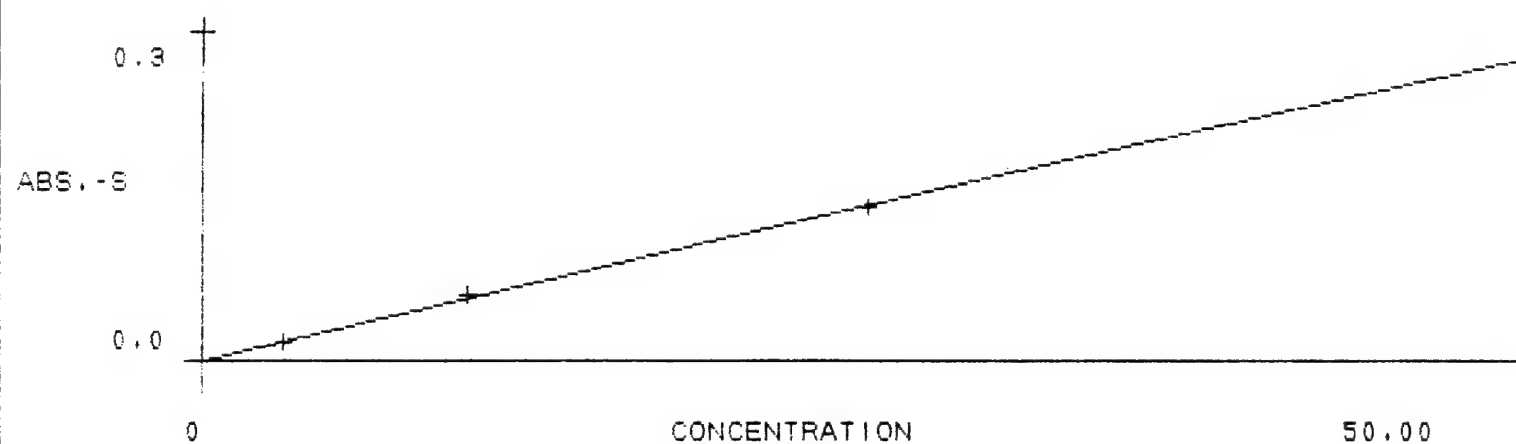
COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000011

Initial Calibration - Lead



STEP 0 OF 5 TIME: 0 TEMPERATURE: 25 AS POSITION: 34
TIME: 15:10

Corr. Coef = 0.9956

000012

INITIAL AND CONTINUING CALIBRATION VERIFICATION
LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s): 17561

[illegible]

Control Limits: 90.0-110.0 (except as noted)

000013

INITIAL AND CONTINUING CALIBRATION VERIFICATION LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s): 17561

[illegible]

Control Limits: 90.0-110.0 (except as noted)

000014

50 MM

INITIAL CALIBRATION

QUADRATIC REGRESSION

DATE = 1/15/91
ANALYST = JAB
PARAMETER = O&GIW, O&GIS, TPHS, TPHW

CONC (X)	mg/1000 ml	%T	ABS (Y)	Y^2	PRED'D X
0.0493		97.89	0.0093	0.0001	0.060
0.2054		94.75	0.0234	0.0005	0.196
0.4108		90.09	0.0453	0.0021	0.407
2.0540		60.79	0.2162	0.0467	2.056
4.1075		37.43	0.4268	0.1821	4.107

Regression Output:

Constant	-0.03
Std Err of Y Est	0.01
R Squared	0.9999812 0.999991
No. of Observations	5.00
Degrees of Freedom	2.00

X Coefficient(s)	9.60	0.21
Std Err of Coef.	0.13	0.29

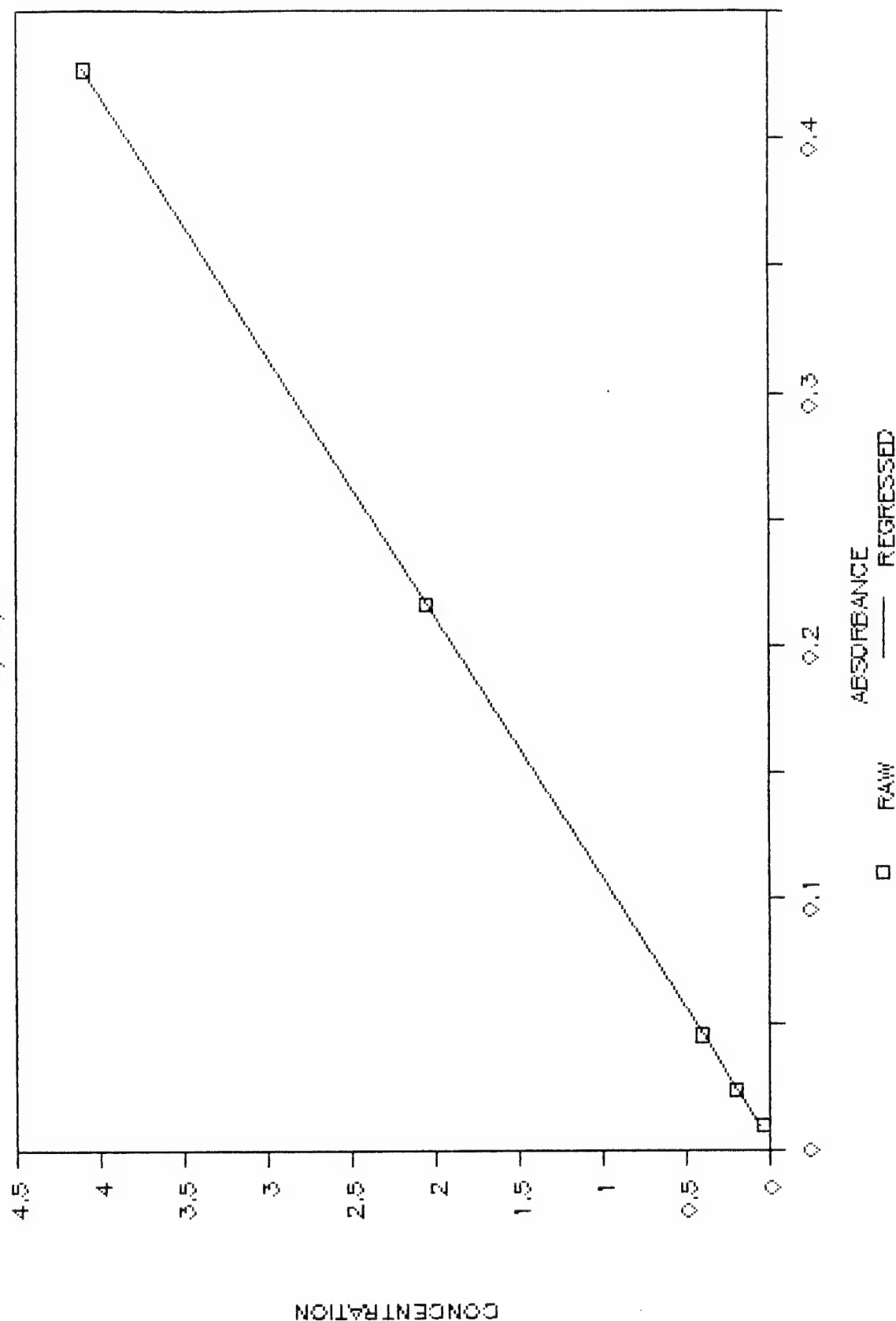
X = 9.60 Y + 0.21 Y^2 - 0.02858

Reviewed by
VJH 1/16/91
Dm
1-16-91

000015

INITIAL CALIBRATION - TPH, O&G

1/15/91



000016

50 MM

INITIAL CALIBRATION VERIFICATION

ANALYST: JAB
DATE: 12/21/90

ABS 0.323
ZT 47.56

REF NUMBER	DATE	ABS	TRUE VALU	DF	CALC. CONC.	% REC
=====	=====	=====	=====	=====	=====	=====
WP 586 CCV1	1/15/91	0.323	30.00	10.00	30.92	103.1
=====	=====	=====	=====	=====	=====	=====
1 WP 586 ICV1	10/08/90	0.308	30.00	10.00	30.40	101.3
2 WP 586 CCV1	10/08/90	0.306	30.00	10.00	30.22	100.7
3 WP 586 ICV1	10/11/90	0.310	30.00	10.00	30.27	100.9
4 WP 586 CCV1	10/11/90	0.315	30.00	10.00	30.75	102.5
5 WP 586 ICV1	10/15/90	0.316	30.00	10.00	30.63	102.1
6 WP 586 CCV1	10/15/90	0.316	30.00	10.00	30.64	102.1
7 WP 586 ICV1	10/16/90	0.309	30.00	10.00	29.88	99.6
8 WP 586 CCV1	10/16/90	0.315	30.00	10.00	30.47	101.6
9 WP 586 ICV1	10/18/90	0.320	30.00	10.00	30.66	102.2
10 WP 586 CCV1	10/18/90	0.319	30.00	10.00	30.58	101.9
11 WP 586 ICV1	10/22/90	0.315	30.00	10.00	29.96	99.9
12 WP 586 CCV1	10/22/90	0.318	30.00	10.00	30.32	101.1
13 WP 586 ICV1	10/24/90	0.318	30.00	10.00	30.09	100.3
14 WP 586 ICV1	10/24/90	0.320	30.00	10.00	30.30	101.0
15 WP 586 ICV1	10/30/90	0.320	30.00	10.00	30.02	100.1
16 WP 586 CCV1	10/30/90	0.325	30.00	10.00	30.40	101.3
17 WP 586 ICV1	11/2/90	0.327	30.00	10.00	29.78	99.3
18 WP 586 CCV1	11/2/90	0.326	30.00	10.00	29.74	99.1
19 WP 586 ICV1	11/6/90	0.327	30.00	10.00	29.93	99.8
20 WP 586 ICV1	11/14/90	0.330	30.00	10.00	30.49	101.6
21 WP 586 CCV1	11/14/90	0.331	30.00	10.00	30.55	101.8
22 WP 586 ICV1	11/18/90	0.329	30.00	10.00	30.23	100.8
23 WP 586 CCV1	11/18/90	0.331	30.00	10.00	30.48	101.6
24 WP 586 ICV1	11/26/90	0.329	30.00	10.00	30.61	102.0
25 WP 586 CCV1	11/26/90	0.333	30.00	10.00	30.94	103.1
26 WP 586 ICV1	12/3/90	0.335	30.00	10.00	30.49	101.6
27 WP 586 CCV1	12/3/90	0.338	30.00	10.00	30.74	102.5
28 WP 586 ICV1	12/5/90	0.332	30.00	10.00	30.17	100.6
29 WP 586 CCV1	12/5/90	0.331	30.00	10.00	30.04	100.1
30 WP 586 ICV1	12/6/90	0.333	30.00	10.00	30.12	100.4
31 WP 586 CCV1	12/6/90	0.336	30.00	10.00	30.41	101.4
32 WP 586 ICV1	12/10/90	0.339	30.00	10.00	30.22	100.7
33 WP 586 CCV1	12/10/90	0.336	30.00	10.00	29.97	99.9
34 WP 586 CCV2	12/10/90	0.339	30.00	10.00	30.21	100.7
35 WP 586 ICV1	12/11/90	0.337	30.00	10.00	30.38	101.3
36 WP 586 CCV1	12/11/90	0.340	30.00	10.00	30.69	102.3
37 WP 586 ICV1	12/13/90	0.337	30.00	10.00	30.23	100.8
38 WP 586 CCV1	12/13/90	0.339	30.00	10.00	30.46	101.5
39 WP 586 ICV1	12/16/90	0.344	30.00	10.00	30.55	101.8
40 WP 586 CCV1	12/16/90	0.338	30.00	10.00	30.04	100.1
41 WP 586 ICV1	12/18/90	0.343	30.00	10.00	30.30	101.0
42 WP 586 CCV1	12/18/90	0.341	30.00	10.00	30.17	100.6
43 WP 586 CCV2	12/18/90	0.341	30.00	10.00	30.13	100.4
44 WP 586 ICV1	12/21/90	0.344	30.00	10.00	30.64	102.1
45 WP 586 CCV1	12/21/90	0.344	30.00	10.00	30.69	102.3

000017

46	WP 586	ICV1	1/5/91	0.326	30.00	10.00	31.77	105.9
47	WP 586	CCV1	1/5/91	0.325	30.00	10.00	31.74	105.8
48	WP 586	CCV2	1/5/91	0.324	30.00	10.00	31.57	105.2
49	WP 586	CCV3	1/5/91	0.326	30.00	10.00	31.78	105.9
50	WP 586	ICV1	1/9/91	0.331	30.00	10.00	32.02	106.7
51	WP 586	CCV1	1/9/91	0.325	30.00	10.00	31.46	104.9
52	WP 586	ICV1	1/15/91	0.327	30.00	10.00	31.37	104.6
53	WP 586	CCV1	1/15/91	0.323	30.00	10.00	30.92	103.1

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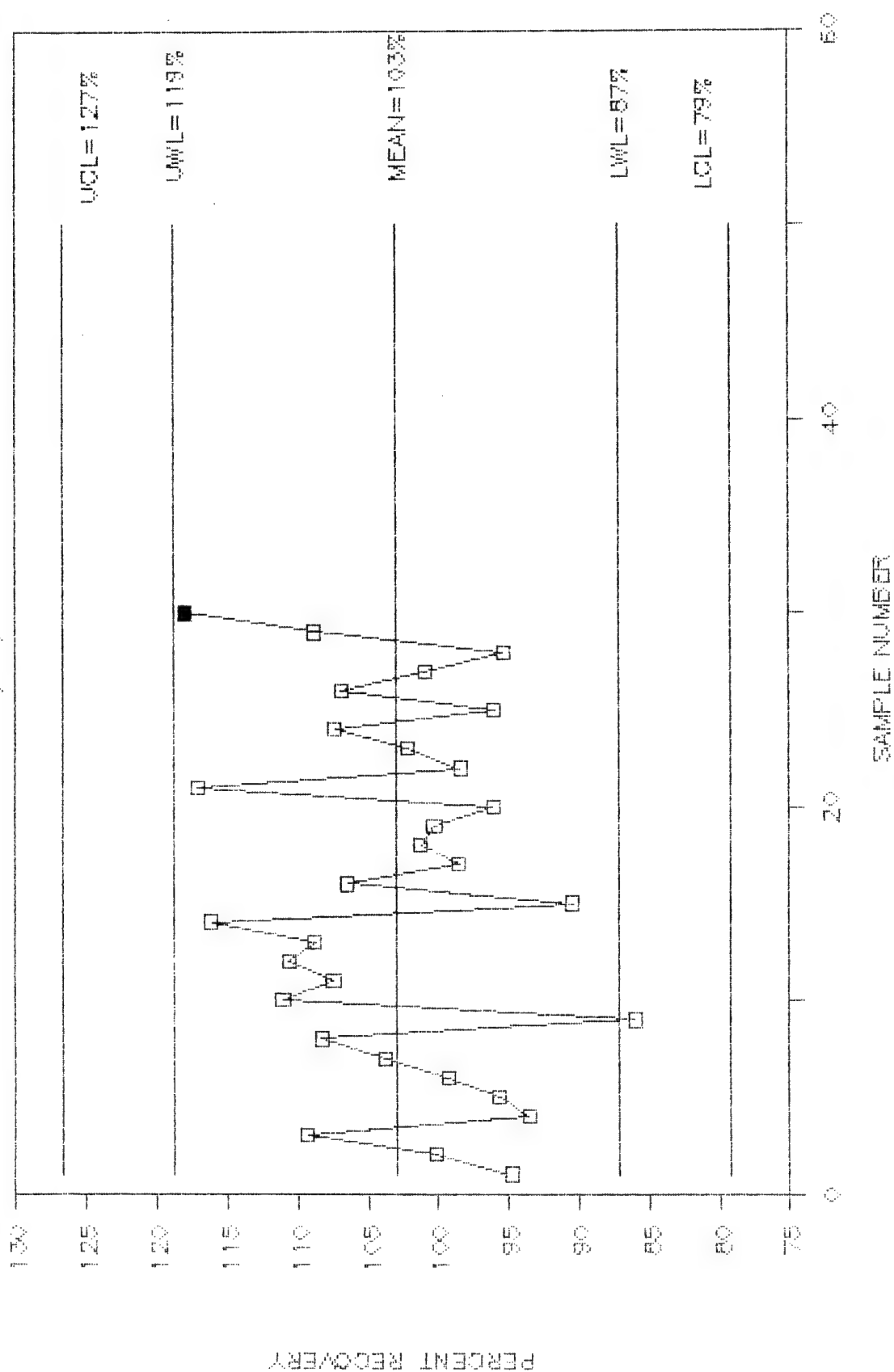
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96.4359

	=====
MEAN	101.7340
STD DEV	1.7660
2 STD	3.5321
3 STD	5.2981

@

LABORATORY CONTROL SAMPLE (SOIL) - LEAD

01/16/91



000019

SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
01/16/91 SOIL MATRIX - FURNACE

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	16293 16JULY90	XXXXXXXXXX	236	223.700	94.8
2	16356 23JULY90	XXXXXXXXXX	236	236.400	100.2
3	16397 26JULY90	XXXXXXXXXX	236	257.900	109.3
4	16356 31JULY90	XXXXXXXXXX	236	220.800	93.6
5	16492 07AUG90	XXXXXXXXXX	236	225.700	95.6
6	16526 16AUG90	XXXXXXXXXX	236	234.300	99.3
7	16663 31AUG90	XXXXXXXXXX	236	244.800	103.7
8	16712 06SEPT90	XXXXXXXXXX	236	255.500	108.3
9	16823 19SEPT90	XXXXXXXXXX	236	202.900	86.0
10	16835 01OCT90	XXXXXXXXXX	236	262.000	111.0
11	16906 02OCT90	XXXXXXXXXX	236	253.600	107.5
12	16923 12OCT90	XXXXXXXXXX	236	261.000	110.6
13	17033 17OCT90	XXXXXXXXXX	236	256.700	108.8
14	16931 19OCT90	XXXXXXXXXX	236	274.000	116.1
15	17037 22OCT90	XXXXXXXXXX	236	213.400	90.4
16	16992 29OCT90	XXXXXXXXXX	236	251.100	106.4
17	17103 05NOV90	XXXXXXXXXX	236	232.400	98.5
18	17093 07NOV90	XXXXXXXXXX	236	238.900	101.2
19	17147 12NOV90	XXXXXXXXXX	236	236.600	100.3
20	17179 12NOV90	XXXXXXXXXX	236	226.700	96.1
21	17268 06DEC90	XXXXXXXXXX	236	276.400	117.1
22	17320 07DEC90	XXXXXXXXXX	236	232.200	98.4
23	17349 07DEC90	XXXXXXXXXX	236	241.100	102.2
24	11/26/90 07DEC90	XXXXXXXXXX	236	253.200	107.3
25	12/10/90 14DEC90	XXXXXXXXXX	236	226.600	96.0
26	12/14/90 18DEC90	XXXXXXXXXX	236	252.100	106.8
27	12/20/90 26DEC90	XXXXXXXXXX	236	238.200	100.9
28	01/02/91 04JAN91	XXXXXXXXXX	236	225.000	95.3
29	01/08/91 15JAN91	XXXXXXXXXX	236	256.700	108.8
30	01/15/91 16JAN91	XXXXXXXXXX	236	278.300	117.9
31					
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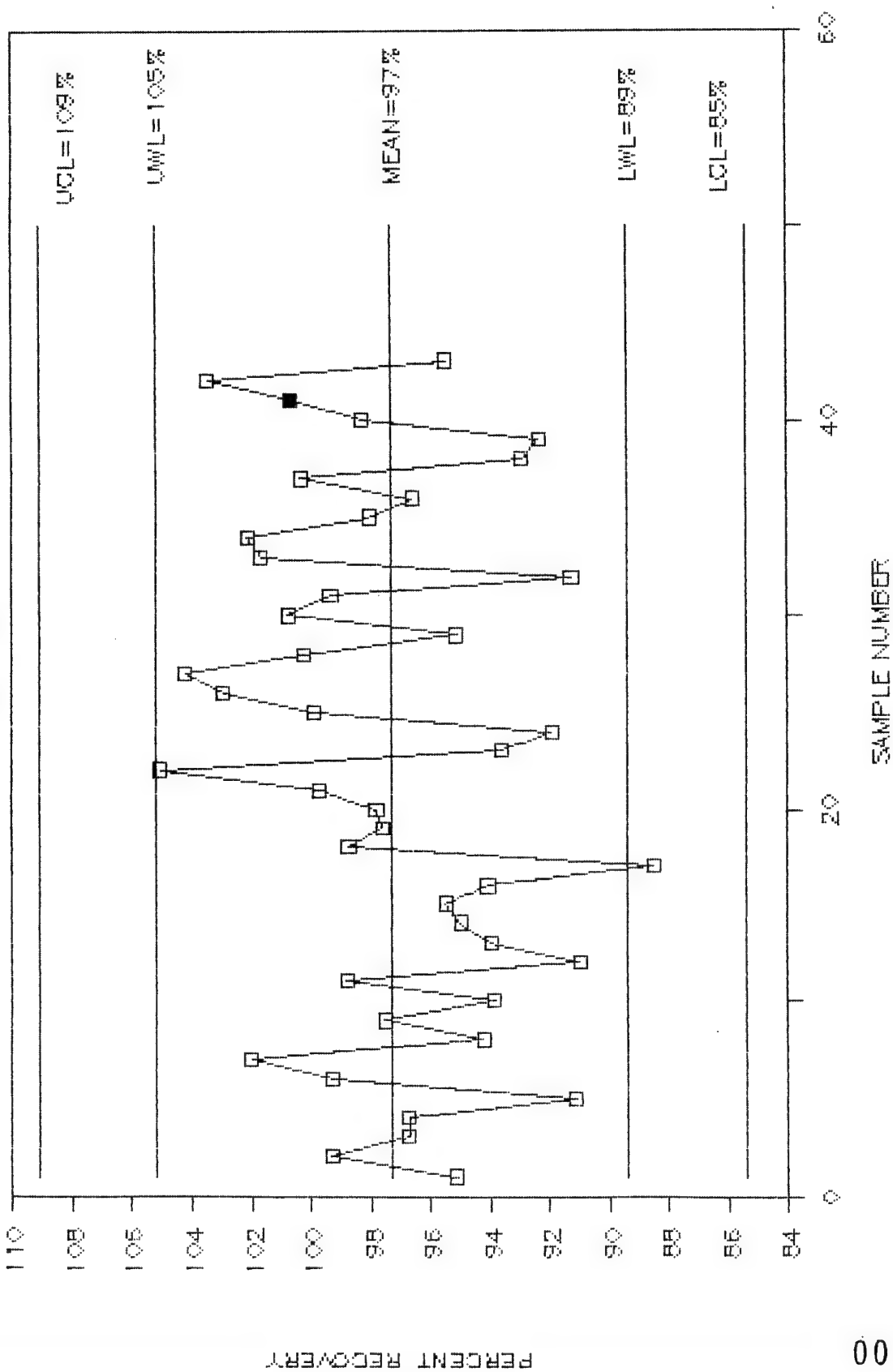
MEAN RECOVERY = 102.9406
STD(N-1) = 7.895684
2 STD(N-1) = 15.79136
3 STD(N-1) = 23.68705

X X+2S X+3S X-2S X-3S
102.9 118.7 126.6 87.1 79.3
MEAN UWL UCL LWL LCL

000020

LAB CONTROL SAMPLE - TPH - SOIL BLANK SPIKE

02/01/91



000021

SHORT-TERM DATA SUMMARY
 TPH SOIL LABORATORY CONTROL SAMPLE
 02/01/91 BLANK SPIKE SOIL

	LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	13548S01	6/5/89	XXXXXXXXXX	68.460	65.109	95.1
2	13576S10	6/16/89	XXXXXXXXXX	68.460	67.993	99.3
3	BLK SPIKE	6/28/89	XXXXXXXXXX	68.460	66.230	96.7
4	BLK SPIKE	6/30/89	XXXXXXXXXX	68.460	66.230	96.7
5	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	62.370	91.1
6	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	67.970	99.3
7	BLK SPIKE	9/7/89	XXXXXXXXXX	68.460	69.830	102.0
8	BLK SPIKE	9/22/89	XXXXXXXXXX	68.460	64.510	94.2
9	BLK SPIKE	1/4/90	XXXXXXXXXX	68.460	66.770	97.5
10	BLK SPIKE	1/7/90	XXXXXXXXXX	68.460	64.250	93.9
11	BLK SPIKE	1/9/90	XXXXXXXXXX	68.460	67.630	98.8
12	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	62.280	91.0
13	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	64.320	94.0
14	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.020	95.0
15	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.380	95.5
16	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	64.400	94.1
17	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	60.610	88.5
18	BLK SPIKE	4/5/90	XXXXXXXXXX	68.460	67.600	98.7
19	BLK SPIKE	4/12/90	XXXXXXXXXX	68.460	66.820	97.6
20	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	66.960	97.8
21	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	68.250	99.7
22	BLK SPIKE	7/22/90	XXXXXXXXXX	68.460	71.920	105.1
23	BLK SPIKE	7/24/90	XXXXXXXXXX	68.460	64.090	93.6
24	16281B03	7/25/90	XXXXXXXXXX	68.460	62.940	91.9
25	16353Q13	7/25/90	XXXXXXXXXX	68.460	68.370	99.9
26	16526B22	9/4/90	XXXXXXXXXX	68.460	70.470	102.9
27	16539B17	9/5/90	XXXXXXXXXX	68.460	71.330	104.2
28	BLK SPIKE	9/7/90	XXXXXXXXXX	68.460	68.620	100.2
29	16752Q18	9/25/90	XXXXXXXXXX	68.460	65.120	95.1
30	16827B10	10/2/90	XXXXXXXXXX	68.460	68.980	100.8
31	16846B05	10/8/90	XXXXXXXXXX	68.460	68.010	99.3
32	16853B16	10/15/90	XXXXXXXXXX	684.600	624.760	91.3
33	16873B09	10/18/90	XXXXXXXXXX	68.460	69.601	101.7
34	16882B07	10/18/90	XXXXXXXXXX	68.460	69.903	102.1
35	16912B16	10/22/90	XXXXXXXXXX	68.460	67.115	98.0
36	17213B17	11/18/90	XXXXXXXXXX	684.60	661.39	96.6
37	17273B01	12/3/90	XXXXXXXXXX	68.46	68.69	100.3
38	BLK SPIKE	12/10/90	XXXXXXXXXX	68.46	63.59	92.9
39	BLK SPIKE	12/11/90	XXXXXXXXXX	68.46	63.22	92.3
40	BLK SPIKE	1/5/90	XXXXXXXXXX	68.46	67.28	98.3
41	17561B08	1/15/91	XXXXXXXXXX	68.46	68.89	100.6
42	17572B06	1/29/91	XXXXXXXXXX	68.46	70.81	103.4
43	17669B05	1/29/91	XXXXXXXXXX	68.46	65.34	95.4
44						
45						
46						
47						
48						
49						
50						

MEAN RECOVERY = 97.27
 STD(N-1) = 3.95
 2 STD(N-1) = 7.91
 3 STD(N-1) = 11.86

X	X+2S	X+3S	X-2S	X-3S
97.3	105.2	109.1	89.4	85.4
MEAN	UWL	UCL	LWL	LCL

000022

CHAIN OF CUSTODY RECORD

CHAIN OF CUSTODY RECORD		PROJECT NAME		CLIENT ADDRESS AND PHONE NUMBER		FOR LAB USE ONLY	
PROJECT NUMBER	PROJECT NAME	COPY TO:		# OF CONTAINERS	ANALYSES REQUESTED	L A B	LAB#
MGM27232.VB.SD	B'ham ANK Tankgall	Hunter-Jackson Solutions				I	1756
CLIENT NAME	HARWRAP					D	
PROJECT MANAGER	J.P. Martin						
REQUESTED COMP. DATE	SID. (P)						
DATE	TIME	C O M P L E X I T Y	SAMPLE DESCRIPTIONS (12 CHARACTERS)				
1-8-91	PM	XX	TANK-380-N	TPH		001	
" "	" "	XX	TANK-380-S			002	
" "	" "	XX	TANK-380-E			003	
" "	" "	XX	Tank-380-W			004	
" "	" "	XX	Tank-380-B			005	
" "	" "	XX	Tank-380-SP			006	
1-10-91	PM	XX	OLD DRUM SOIL			007	
			Method blank	✓		ZSI	
			Blank spike	✓		BOS	
SAMPLED BY AND TITLE		DATE/TIME		RELINQUISHED BY	DATE/TIME	HAZWRAP/NEESA (Y) N	
Philip N. Howard		1-8-91/1700		John A. Howard	1-10-91/1655	QC LEVEL 1 2 3 1 Ht pm 3 Phase (SD)	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:	DATE/TIME	COC Yes No ICE Yes No	
						ANA REQ Yes No TEMP 1° Ph AA	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:	DATE/TIME	CUST SEAL NO Ph AA	
						SAMPLE COND: Soil	
RECEIVED BY LAB:		DATE/TIME		SAMPLE SHIPPED VIA	AIR BILL #		
MS Sileo		1/10/91 1700		UPS BUS FED-EX HAND OTHER			
REMARKS				ENTERED INTO LIMS	COC REVIEWED	4/10/91	



February 6, 1991

MGM27232.UB.SD

Mr. J. P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard, Laboratory No. 17570

Dear Mr. Martin:

On January 14, 1991, the CH2M Hill Montgomery Laboratory received eight samples with a request for analysis of selected parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analysis of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom

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CH2M HILL Laboratory No. 17570

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 INORGANIC DATA	
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UST 130-S (LMG #17570003)	5
UST 130-E (LMG #17570004)	6
UST 130-W (LMG #17570005)	7
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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17570

<u>CH2M HILL Sample No.</u>	<u>Sample Description</u>					
17570001	SAMPLE UST 130-N	01/11/91	PM	GRAB	SOIL	
17570002	SAMPLE UST 130-N DUP	01/11/91	PM	GRAB	SOIL	
17570003	SAMPLE UST 130-S	01/11/91	PM	GRAB	SOIL	
17570004	SAMPLE UST 130-E	01/11/91	PM	GRAB	SOIL	
17570005	SAMPLE UST 130-W	01/11/91	PM	GRAB	SOIL	
17570006	SAMPLE UST 130-B	01/11/91	PM	GRAB	SOIL	
17570007	SAMPLE UST 130-SP	01/11/91	PM	GRAB	SOIL	
17570008	SAMPLE UST 130-SP DUP	01/11/91	PM	GRAB	SOIL	

CASE NARRATIVE
Cations

Batch Number: 17570

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:

All holding times were met.

II. Analysis:

A. Blanks:

All acceptance criteria were met.

B. Calibration:

All acceptance criteria were met.

C. ICP Interference Check Sample:

All acceptance criteria were met.

D. Spike Sample Analysis:

All acceptance criteria were met.

E. Duplicate Sample Analysis:

All acceptance criteria were met.

F. Laboratory Control Sample Analysis:

All acceptance criteria were met.

G. ICP Serial Dilution:

Not required for this level QC.

H. Other:

None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 6 FEB 91

000001

CASE NARRATIVE
General Chemistry

Batch Number: 17570

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 6 FEB 91



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-N PM GRAB

Laboratory Sample Number: 17570001 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.9	<1.9	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000003



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-N DUP PM GRAB

Laboratory Sample Number: 17570002 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	<2.0	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Atten: MR. J. P. MARTIN

Sample Description: UST 130-S PM GRAB

Laboratory Sample Number: 17570003 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	9.7	335	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000005



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-E PM GRAB

Laboratory Sample Number: 17570004 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	2.9	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000006



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-W PM GRAB

Laboratory Sample Number: 17570005 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	73.0	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000007



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-B PM GRAB

Laboratory Sample Number: 17570006 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Lead	EPA239.2/SW7421	1.5	16.4	mg/kg	01/16/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.9	130	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000008

®



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: UST 130-SP PM COMP

Laboratory Sample Number: 17570007 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NON-IGNITABLE	----	02/05/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	20.7	1270	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000009

CH2M HILL

Quality
Analytical Laboratories

2567 Fairlane Drive, P.O. Box 230548,
Montgomery, Alabama 36116

205.271.1444

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Atten: MR. J. P. MARTIN

Sample Description: UST 130-SPDUP PM COMP

Laboratory Sample Number: 17570008 Date Collected: 01/11/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NON-IGNITABLE	----	02/05/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000010

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17570ZS1 Date Collected: 01/14/91 Matrix: SOIL BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/16/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.6	<1.6	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000011



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17570
Date Received: 01/14/91

Sample Description: BLANK SPIKE

Laboratory Sample Number: 17570B09

Date Collected: 01/14/91

Matrix: SOIL BLK SPK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	----	103	%REC	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

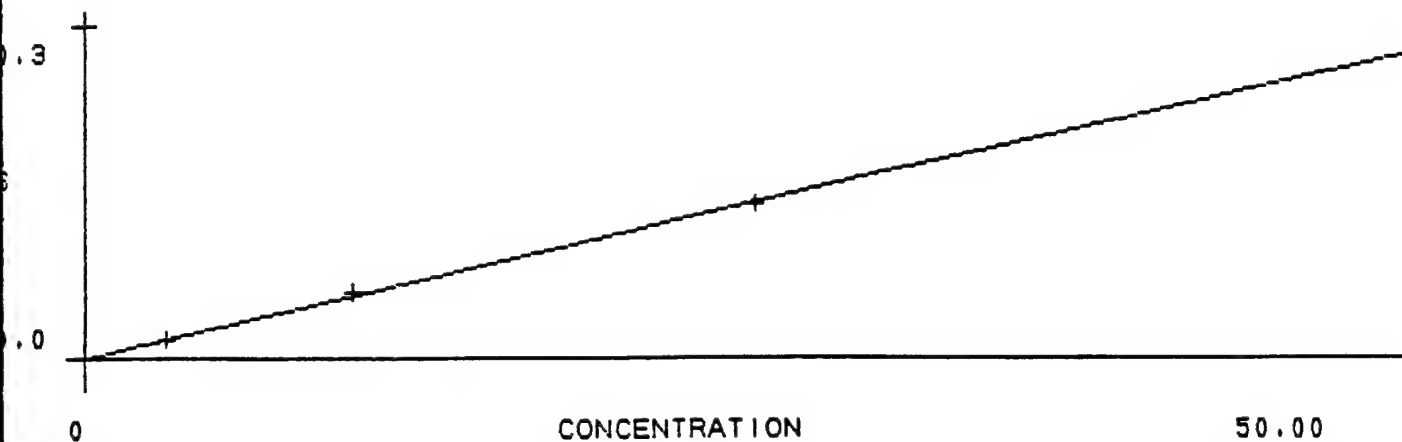
Reviewed by: 

INRPRPT(v910124)

000012

INITIAL CALIBRATION

LEAD



0 OF 5

TIME: 0

TEMPERATURE: 25

AS POSITION: 34

TIME: 15:10

CONCENTRATION (ug/L)

ABSORBANCE

3.0
10.0
25.0
50.0

0.056
0.119
0.246
0.454

Correlation Coefficient = 0.9999

000013

50 MM

INITIAL CALIBRATION

QUADRATIC REGRESSION

DATE = 2/4/91
ANALYST = JAB
PARAMETER = O&GIW, O&GIS, TPHS, TPHW

CONC (X) mg/1000 ml	%T	ABS (Y)	Y^2	PRED'D X
0.0493	98.71	0.0056	0.0000	0.031
0.2054	94.38	0.0251	0.0006	0.216
0.4108	89.75	0.0470	0.0022	0.423
2.0540	60.49	0.2183	0.0477	2.048
4.1075	36.71	0.4352	0.1894	4.109

Regression Output:

Constant	-0.02
Std Err of Y Est	0.02
R Squared	0.9999486 0.999974
No. of Observations	5.00
Degrees of Freedom	2.00

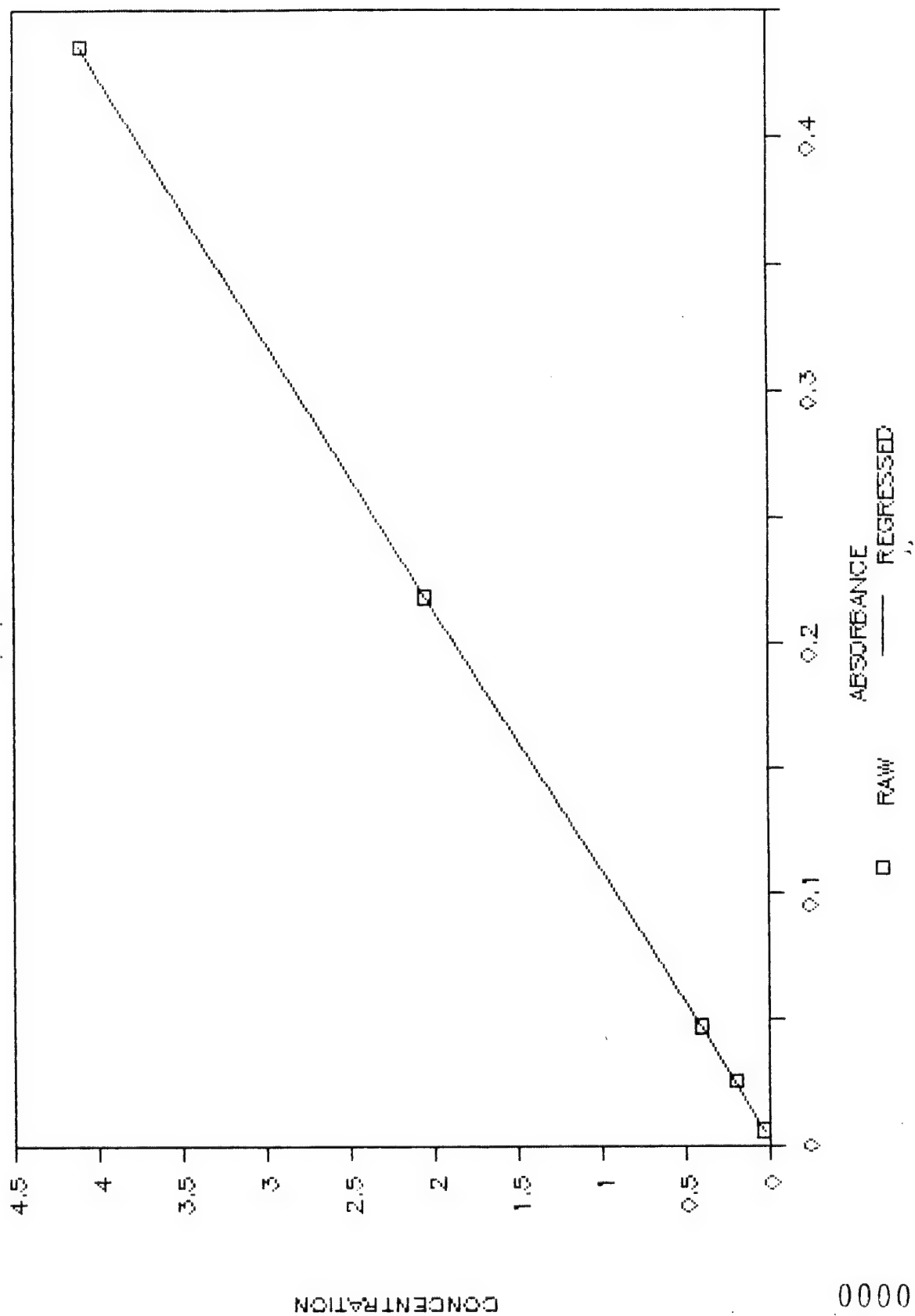
X Coefficient(s)	9.47	0.05
Std Err of Coef.	0.21	0.46

X = 9.47 Y + 0.05 Y^2 - 0.02205

Reviewed by
Sham Rast
2-5-91
090014
① m-
9-5

INITIAL CALIBRATION - TPH, O&G

2/4/91



000015

LEVEL 1

Batch Number(s) : 17570

ANALYTE	Conc. Units	1			2			3		
		True	Found	% Rec.	True	Found	% Rec.	True	Found	% Rec.
TPH	MG/L	30.00	30.78	102.6	30.00	30.58	101.9			
LEAD	UG/L	39.00	40.14	102.9	39.00	39.97	102.5	39.00	39.00	98.1

000016

INITIAL AND CONTINUING CALIBRATION VERIFICATION
LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s) : 17570

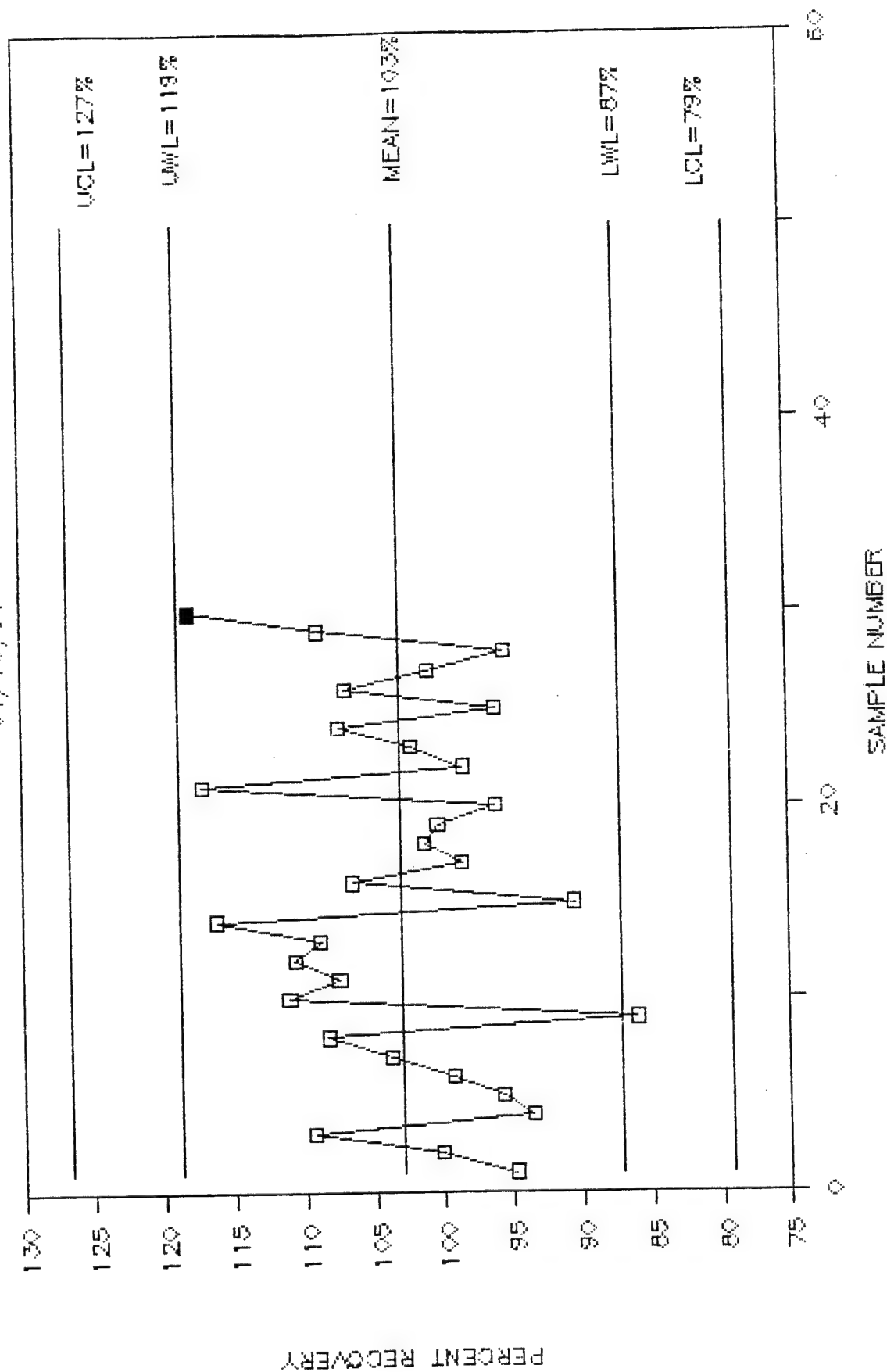
[illegible]

Control Limits: 90.0-110.0 (except as noted)

000017

LABORATORY CONTROL SAMPLE (SOIL) - LEAD

01/16/91



810000

SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
01/16/91 SOIL MATRIX - FURNACE

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	Z REC
1	16293 16JULY90	XXXXXXXXXX	236	223.700	94.8
2	16356 23JULY90	XXXXXXXXXX	236	236.400	100.2
3	16397 26JULY90	XXXXXXXXXX	236	257.900	109.3
4	16356 31JULY90	XXXXXXXXXX	236	220.800	93.6
5	16492 07AUG90	XXXXXXXXXX	236	225.700	95.6
6	16526 16AUG90	XXXXXXXXXX	236	234.300	99.3
7	16663 31AUG90	XXXXXXXXXX	236	244.800	103.7
8	16712 06SEPT90	XXXXXXXXXX	236	255.500	108.3
9	16823 19SEPT90	XXXXXXXXXX	236	202.900	86.0
10	16835 01OCT90	XXXXXXXXXX	236	262.000	111.0
11	16906 02OCT90	XXXXXXXXXX	236	253.600	107.5
12	16923 12OCT90	XXXXXXXXXX	236	261.000	110.6
13	17033 17OCT90	XXXXXXXXXX	236	256.700	108.8
14	16931 19OCT90	XXXXXXXXXX	236	274.000	116.1
15	17037 22OCT90	XXXXXXXXXX	236	213.400	90.4
16	16992 29OCT90	XXXXXXXXXX	236	251.100	106.4
17	17103 05NOV90	XXXXXXXXXX	236	232.400	98.5
18	17093 07NOV90	XXXXXXXXXX	236	238.900	101.2
19	17147 12NOV90	XXXXXXXXXX	236	236.600	100.3
20	17179 12NOV90	XXXXXXXXXX	236	226.700	96.1
21	17268 06DEC90	XXXXXXXXXX	236	276.400	117.1
22	17320 07DEC90	XXXXXXXXXX	236	232.200	98.4
23	17349 07DEC90	XXXXXXXXXX	236	241.100	102.2
24	11/26/90 07DEC90	XXXXXXXXXX	236	253.200	107.3
25	12/10/90 14DEC90	XXXXXXXXXX	236	226.600	96.0
26	12/14/90 18DEC90	XXXXXXXXXX	236	252.100	106.8
27	12/20/90 26DEC90	XXXXXXXXXX	236	238.200	100.9
28	01/02/91 04JAN91	XXXXXXXXXX	236	225.000	95.3
29	01/08/91 15JAN91	XXXXXXXXXX	236	256.700	108.8
30	01/15/91 16JAN91	XXXXXXXXXX	236	278.300	117.9 ←
31					
32					
33					
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49					
50					

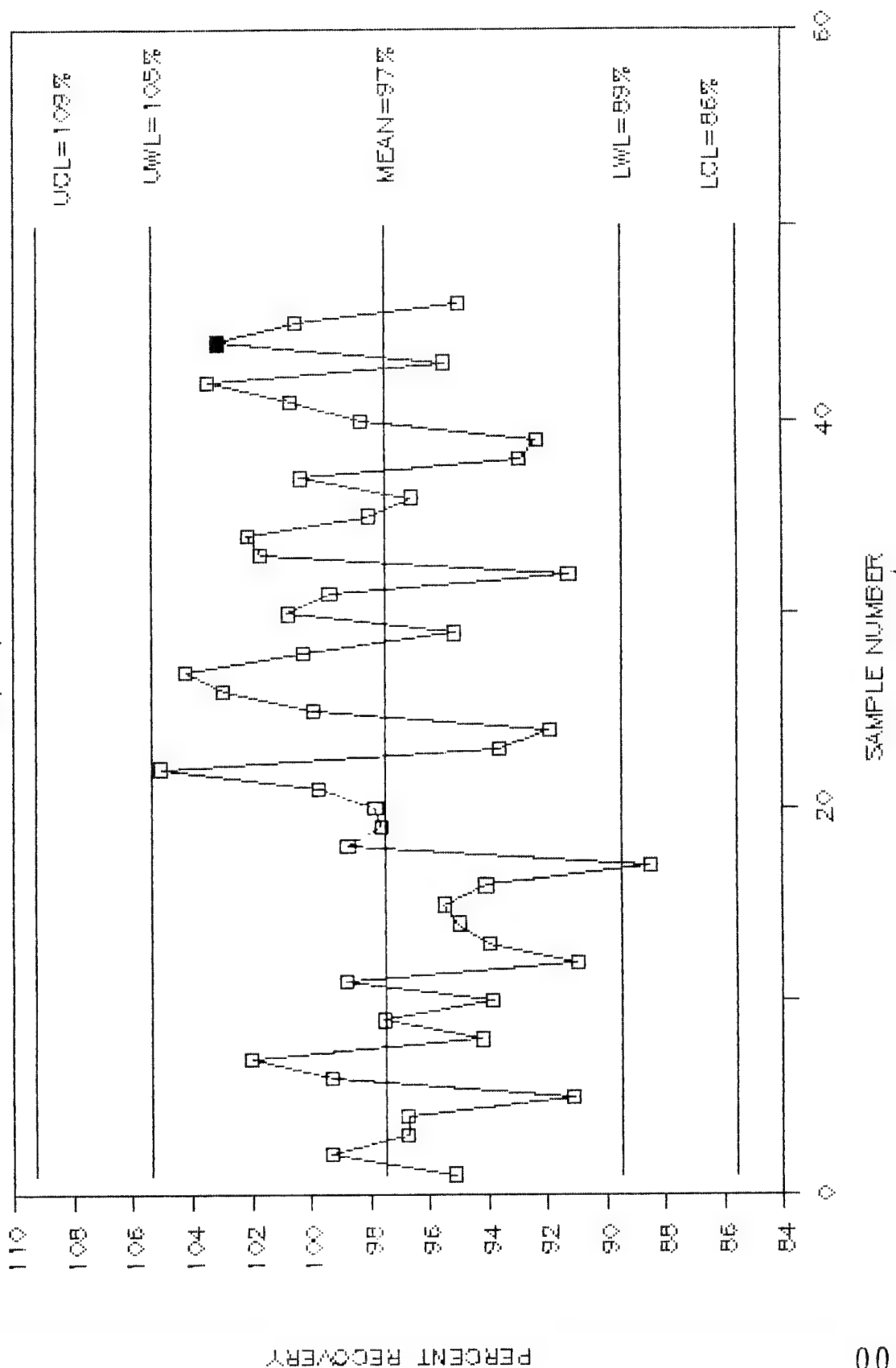
MEAN RECOVERY = 102.9406
STD(N-1) = 7.895684
2 STD(N-1) = 15.79136
3 STD(N-1) = 23.68705

X	X+2S	X+3S	X-2S	X-3S
102.9	118.7	126.6	87.1	79.3
MEAN	UWL	UCL	LWL	LCL

000019

LAB CONTROL SAMPLE - TPH - SOIL BLANK SPIKE

02/06/91



SHORT-TERM DATA SUMMARY
 TPH SOIL LABORATORY CONTROL SAMPLE
 02/06/91 BLANK SPIKE SOIL

	LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	13548S01	6/5/89	XXXXXXXXXX	68.460	65.109	95.1
2	13576S10	6/16/89	XXXXXXXXXX	68.460	67.993	99.3
3	BLK SPIKE	6/28/89	XXXXXXXXXX	68.460	66.230	96.7
4	BLK SPIKE	6/30/89	XXXXXXXXXX	68.460	66.230	96.7
5	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	62.370	91.1
6	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	67.970	99.3
7	BLK SPIKE	9/7/89	XXXXXXXXXX	68.460	69.830	102.0
8	BLK SPIKE	9/22/89	XXXXXXXXXX	68.460	64.510	94.2
9	BLK SPIKE	1/4/90	XXXXXXXXXX	68.460	66.770	97.5
10	BLK SPIKE	1/7/90	XXXXXXXXXX	68.460	64.250	93.9
11	BLK SPIKE	1/9/90	XXXXXXXXXX	68.460	67.630	98.8
12	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	62.280	91.0
13	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	64.320	94.0
14	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.020	95.0
15	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.380	95.5
16	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	64.400	94.1
17	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	60.610	88.5
18	BLK SPIKE	4/5/90	XXXXXXXXXX	68.460	67.600	98.7
19	BLK SPIKE	4/12/90	XXXXXXXXXX	68.460	66.820	97.6
20	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	66.960	97.8
21	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	68.250	99.7
22	BLK SPIKE	7/22/90	XXXXXXXXXX	68.460	71.920	105.1
23	BLK SPIKE	7/24/90	XXXXXXXXXX	68.460	64.090	93.6
24	16281B03	7/25/90	XXXXXXXXXX	68.460	62.940	91.9
25	16353Q13	7/25/90	XXXXXXXXXX	68.460	68.370	99.9
26	16526B22	9/4/90	XXXXXXXXXX	68.460	70.470	102.9
27	16539B17	9/5/90	XXXXXXXXXX	68.460	71.330	104.2
28	BLK SPIKE	9/7/90	XXXXXXXXXX	68.460	68.620	100.2
29	16752Q18	9/25/90	XXXXXXXXXX	68.460	65.120	95.1
30	16827B10	10/2/90	XXXXXXXXXX	68.460	68.980	100.8
31	16846B05	10/8/90	XXXXXXXXXX	68.460	68.010	99.3
32	16853B16	10/15/90	XXXXXXXXXX	684.600	624.760	91.3
33	16873B09	10/18/90	XXXXXXXXXX	68.460	69.601	101.7
34	16882B07	10/18/90	XXXXXXXXXX	68.460	69.903	102.1
35	16912B16	10/22/90	XXXXXXXXXX	68.460	67.115	98.0
36	17213B17	11/18/90	XXXXXXXXXX	684.60	661.39	96.6
37	17273B01	12/3/90	XXXXXXXXXX	68.46	68.69	100.3
38	BLK SPIKE	12/10/90	XXXXXXXXXX	68.46	63.59	92.9
39	BLK SPIKE	12/11/90	XXXXXXXXXX	68.46	63.22	92.3
40	BLK SPIKE	1/5/91	XXXXXXXXXX	68.46	67.28	98.3
41	17561B08	1/15/91	XXXXXXXXXX	68.46	68.89	100.6
42	17572Q06	1/29/91	XXXXXXXXXX	68.46	70.81	103.4
43	17669B05	1/29/91	XXXXXXXXXX	68.46	65.34	95.4
44	17570B09	2/4/91	XXXXXXXXXX	68.46	70.60	103.1
45	17587B08	2/4/91	XXXXXXXXXX	68.46	68.79	100.5
46	17699B15	2/5/91	XXXXXXXXXX	68.46	65.03	95.0
47						
48						
49						
50						

MEAN RECOVERY = 97.42
 STD(N-1) = 3.96
 2 STD(N-1) = 7.92
 3 STD(N-1) = 11.88

X X+2S X+3S X-2S X-3S
 97.4 105.3 109.3 89.5 85.5
 MEAN UWL UCL LWL LCL

000021

CHAIN OF CUSTODY RECORD

[illegible]



February 8, 1991

MGM27232.UB.SD

Mr. J. P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard, Laboratory No. 17587

Dear Mr. Martin:

On January 16, 1991, the CH2M Hill Montgomery Laboratory received seven samples with a request for analysis of selected parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analysis of these samples are discussed in the case narrative.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom

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CH2M HILL Laboratory No. 17587

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Case Narrative (General Chemistry)	2
Analytical Results of Field Samples	
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120-S (LMG #17587002)	4
120-E (LMG #17587003)	5
120-W (LMG #17587004)	6
120-SP DUP (LMG #17587005)	7
120-SP (LMG #17587006)	8
120-E-DUP (LMG #17587007)	9
Quality Control Data	
Method Blank (LMG #17587ZS1)	10
Blank Spike (LMG #17587B08)	11
Initial Calibration	12-14
Initial & Continuing Calibration Verification	15
LCS Control Charts	16-19
Copy of Chain-of-custody	20

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17587

CH2M HILL Sample No.	Sample Description				
17587001	SAMPLE 120-N	01/14/91	1600	GRAB	SOIL
17587002	SAMPLE 120-S	01/14/91	1600	GRAB	SOIL
17870003	SAMPLE 120-E	01/14/91	1600	GRAB	SOIL
17587004	SAMPLE 120-W	01/14/91	1600	GRAB	SOIL
17587005	SAMPLE 120-SP DUP	01/14/91	1600	GRAB	SOIL
17587006	SAMPLE 120-SP	01/14/91	1600	COMP	SOIL
17870007	SAMPLE 120-E-DUP	01/14/91	1600	GRAB	SOIL

CASE NARRATIVE
Cations

Batch Number: 17587

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:

All holding times were met.

II. Analysis:

A. Blanks:

All acceptance criteria were met.

B. Calibration:

All acceptance criteria were met.

C. ICP Interference Check Sample:

All acceptance criteria were met.

D. Spike Sample Analysis:

All acceptance criteria were met.

E. Duplicate Sample Analysis:

All acceptance criteria were met.

F. Laboratory Control Sample Analysis:

All acceptance criteria were met.

G. ICP Serial Dilution:

Not required for this level QC.

H. Other:

None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 8 FEB 91

000001

CASE NARRATIVE
General Chemistry

Batch Number: 17587

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time: All criteria met.

II. Analysis:

- | | | |
|----|---------------------|---|
| A. | Calibration: | Acceptance criteria met. |
| B. | Blanks: | Acceptance criteria met. |
| C. | Matrix Spike: | Acceptance criteria met. |
| D. | Duplicate Analysis: | Acceptance criteria met. |
| E. | Lab Control Sample: | Acceptance criteria met. |
| F. | Other: | Upon receipt of the samples, it was suspected that water from the melted ice in the cooler had leaked into samples 17587003, 17587004 and 17587005. The water was decanted from these three samples into a separatory funnel and analyzed for TPH. The 70-ml sample yielded a result of 208 mg/L TPH. |

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 8 FEB 91

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: 120-N 1600 GRAB SOIL

Laboratory Sample Number: 17587001 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	3.2	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000003



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: 120-S 1600 GRAB SOIL

Laboratory Sample Number: 17587002 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	4.7	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000004

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

=====

Sample Description: 120-E 1600 GRAB SOIL

Laboratory Sample Number: 17587003 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.1	9.2	mg/Kg	02/04/91

=====

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000005



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: 120-W 1600 GRAB SOIL

Laboratory Sample Number: 17587004 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Lead	EPA239.2/SW7421	2.4	16.2	mg/kg	01/24/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.1	28.6	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000006



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: 120-SP DUP 1600 GRAB SOIL

Laboratory Sample Number: 17587005 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	11.0	472	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000007

CH2M HILL

Quality
Analytical Laboratory2567 Fairlane Drive, P.O. Box 230548,
Montgomery, Alabama 36116

205.271.1444



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: 120-SP 1600 GRAB SOIL

Laboratory Sample Number: 17587006 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NON-IGNITABLE	----	02/05/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.1	27.6	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000003

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Atten: MR. J.P. MARTIN

Sample Description: 120-E-DUP 1600 GRAB SOIL

Laboratory Sample Number: 17587007 Date Collected: 01/14/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	10.7	209	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

000009



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Atten: MR. J.P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 17587ZS1

Date Collected: 01/16/91

Matrix: SOIL BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/24/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.6	<1.6	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

Reviewed by: 

INRPRPT(v910124)

REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17587
Date Received: 01/16/91

Sample Description: BLK SPK/LCS BLANK SPIKE

Laboratory Sample Number: 17587B08 Date Collected: 01/14/91 Matrix: SOIL BLK SPK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	----	101	%REC	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE.

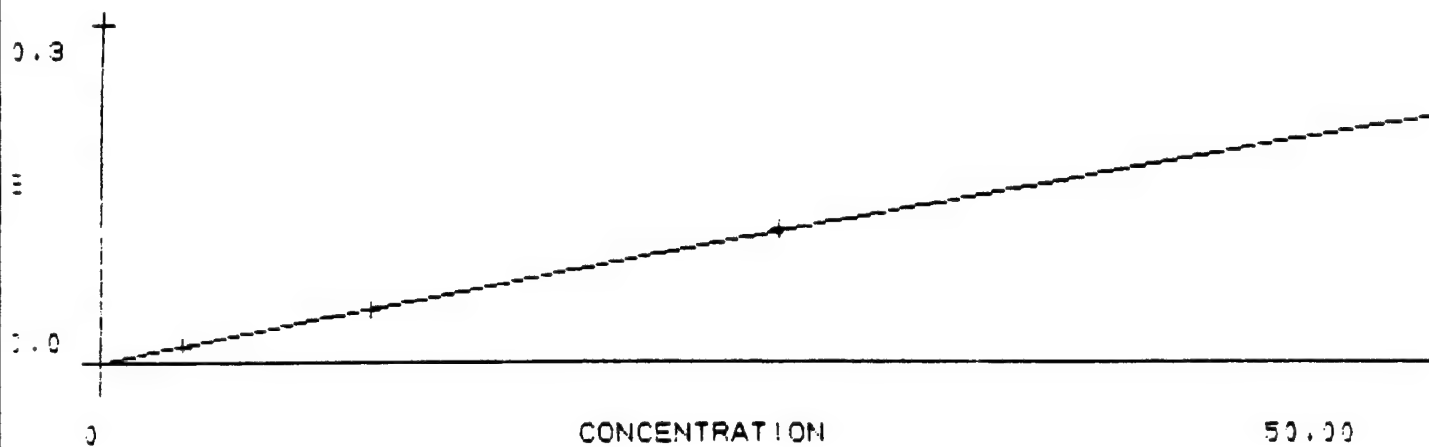
Reviewed by: 

INRPRPT(v910124)

000011

INITIAL CALIBRATION

LEAD



0 OF 5

TIME: 0

TEMPERATURE: 25

AS POSITION: 27

TIME: 17:01

CONCENTRATION (ug/L)

ABSORBANCE

3.0

0.042

10.0

0.081

25.0

0.160

50.0

0.307

Correlation Coefficient = 0.9997

000012

50 MM

INITIAL CALIBRATION

QUADRATIC REGRESSION

DATE = 2/4/91
ANALYST = JAB
PARAMETER = O&GIW, O&GIS, TPHS, TPHW

CONC (X)	mg/1000 ml	%T	ABS (Y)	Y^2	PRED'D X
0.0493		98.71	0.0056	0.0000	0.031
0.2054		94.38	0.0251	0.0006	0.216
0.4108		89.75	0.0470	0.0022	0.423
2.0540		60.49	0.2183	0.0477	2.048
4.1075		36.71	0.4352	0.1894	4.109

Regression Output:

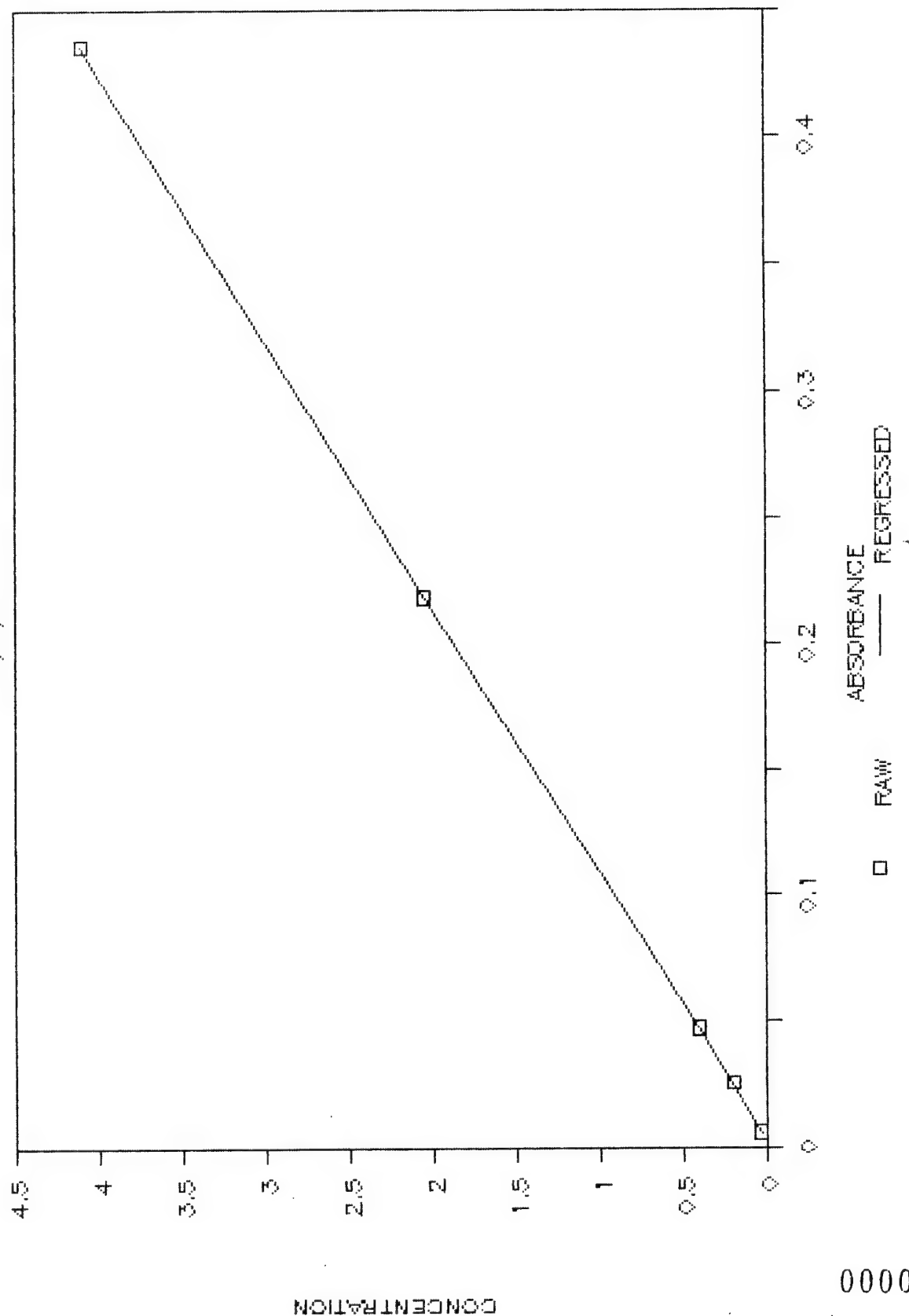
Constant		-0.02	
Std Err of Y Est		0.02	
R Squared	0.9999486	0.999974	
No. of Observations		5.00	
Degrees of Freedom		2.00	
X Coefficient(s)	9.47	0.05	
Std Err of Coef.	0.21	0.46	
X =	9.47 Y	+	0.05 Y^2-0.02205

Reviewed by
Shan Ant
2-5-91

000013
9.5

INITIAL CALIBRATION - TPH, O&G

2/4/91



000014

INITIAL AND CONTINUING CALIBRATION VERIFICATION
LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s) : 17587

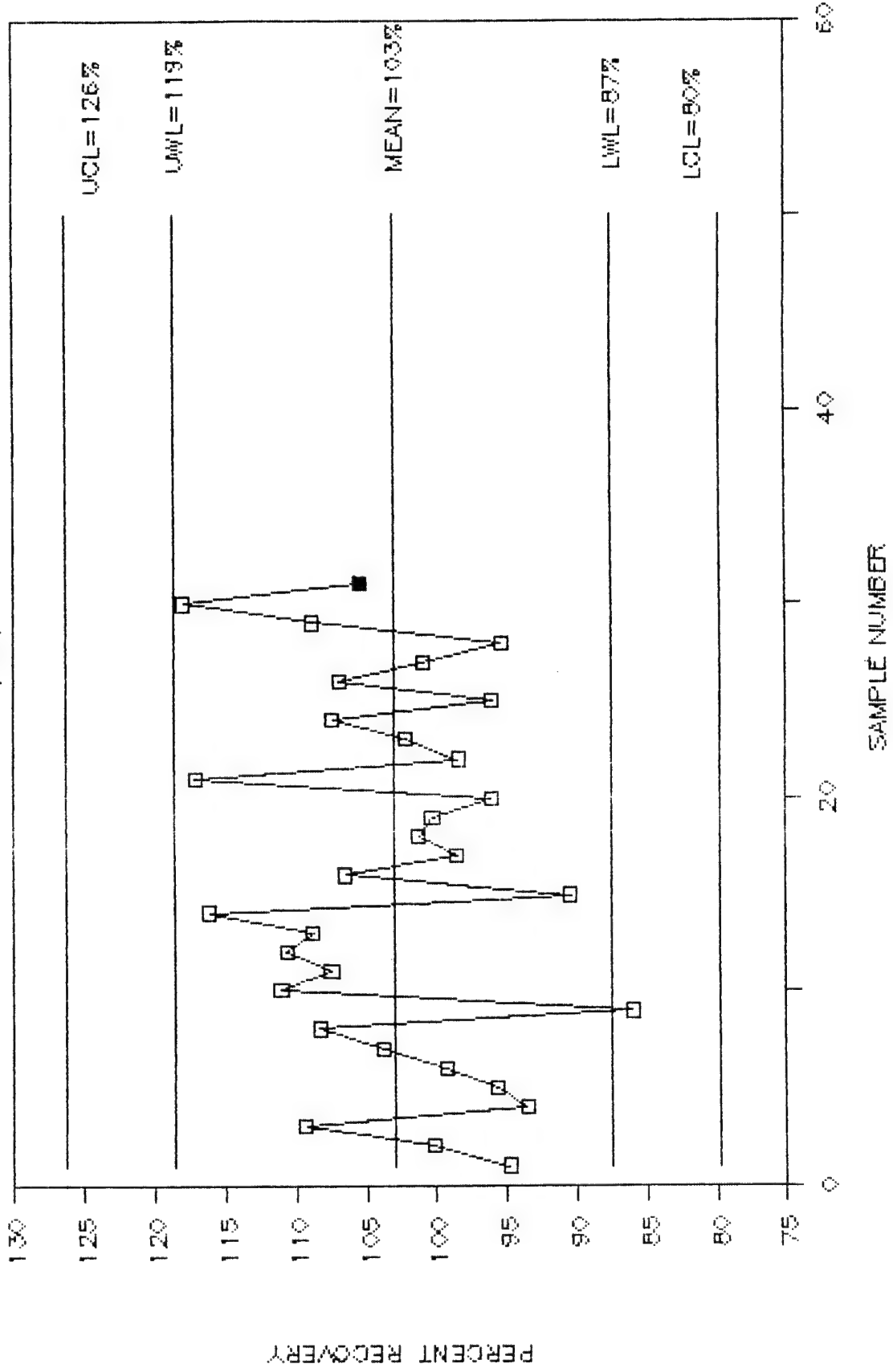
[illegible]

Control Limits: 90.0-110.0 (except as noted)

000015

LABORATORY CONTROL SAMPLE (SOIL) - LEAD

01/25/91



910000

SHORT-TERM DATA SUMMARY
 LEAD LABORATORY CONTROL SAMPLE
 01/25/91 SOIL MATRIX - FURNACE

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	Z REC
1	16293 16JULY90	XXXXXXXXXX	236	223.700	94.8
2	16356 23JULY90	XXXXXXXXXX	236	236.400	100.2
3	16397 26JULY90	XXXXXXXXXX	236	257.900	109.3
4	16356 31JULY90	XXXXXXXXXX	236	220.800	93.6
5	16492 07AUG90	XXXXXXXXXX	236	225.700	95.6
6	16526 16AUG90	XXXXXXXXXX	236	234.300	99.3
7	16663 31AUG90	XXXXXXXXXX	236	244.800	103.7
8	16712 06SEP90	XXXXXXXXXX	236	255.500	108.3
9	16823 19SEP90	XXXXXXXXXX	236	202.900	86.0
10	16835 01OCT90	XXXXXXXXXX	236	262.000	111.0
11	16906 02OCT90	XXXXXXXXXX	236	253.600	107.5
12	16923 12OCT90	XXXXXXXXXX	236	261.000	110.6
13	17033 17OCT90	XXXXXXXXXX	236	256.700	108.8
14	16931 19OCT90	XXXXXXXXXX	236	274.000	116.1
15	17037 22OCT90	XXXXXXXXXX	236	213.400	90.4
16	16992 29OCT90	XXXXXXXXXX	236	251.100	106.4
17	17103 05NOV90	XXXXXXXXXX	236	232.400	98.5
18	17093 07NOV90	XXXXXXXXXX	236	238.900	101.2
19	17147 12NOV90	XXXXXXXXXX	236	236.600	100.3
20	17179 12NOV90	XXXXXXXXXX	236	226.700	96.1
21	17268 06DEC90	XXXXXXXXXX	236	276.400	117.1
22	17320 07DEC90	XXXXXXXXXX	236	232.200	98.4
23	17349 07DEC90	XXXXXXXXXX	236	241.100	102.2
24	11/26/90 07DEC90	XXXXXXXXXX	236	253.200	107.3
25	12/10/90 14DEC90	XXXXXXXXXX	236	226.600	96.0
26	12/14/90 18DEC90	XXXXXXXXXX	236	252.100	106.8
27	12/20/90 26DEC90	XXXXXXXXXX	236	238.200	100.9
28	01/02/91 04JAN91	XXXXXXXXXX	236	225.000	95.3
29	01/08/91 15JAN91	XXXXXXXXXX	236	256.700	108.8
30	01/15/91 16JAN91	XXXXXXXXXX	236	278.300	117.9
31	01/23/91 24JAN91	XXXXXXXXXX	236	248.700	105.4 ←
32					
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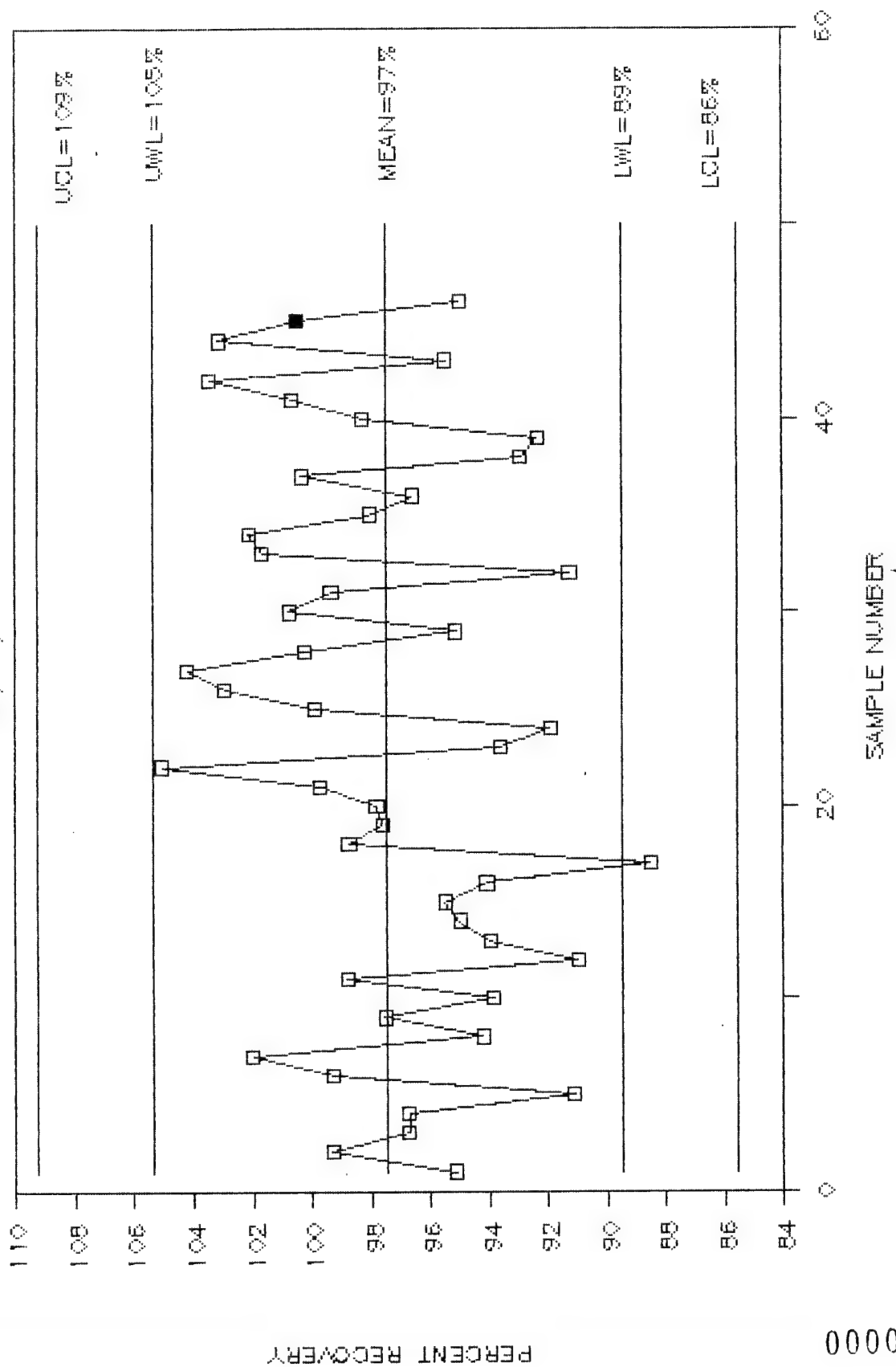
MEAN RECOVERY = 103.0194
 STD(N-1) = 7.775340
 2 STD(N-1) = 15.55068
 3 STD(N-1) = 23.32602

X 103.0
 MEAN
 X+2S 118.6
 UWL
 X+3S 126.3
 UCL
 X-2S 87.5
 LWL
 X-3S 79.7
 LCL

000017

LAB CONTROL SAMPLE - TPH - SOIL BLANK SPIKE

02/06/91



810000

SHORT-TERM DATA SUMMARY
 TPH SOIL LABORATORY CONTROL SAMPLE
 02/06/91 BLANK SPIKE SOIL

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1 13548S01	6/5/89	XXXXXXXXXX	68.460	65.109	95.1
2 13576S10	6/16/89	XXXXXXXXXX	68.460	67.993	99.3
3 BLK SPIKE	6/28/89	XXXXXXXXXX	68.460	66.230	96.7
4 BLK SPIKE	6/30/89	XXXXXXXXXX	68.460	66.230	96.7
5 BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	62.370	91.1
6 BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	67.970	99.3
7 BLK SPIKE	9/7/89	XXXXXXXXXX	68.460	69.830	102.0
8 BLK SPIKE	9/22/89	XXXXXXXXXX	68.460	64.510	94.2
9 BLK SPIKE	1/4/90	XXXXXXXXXX	68.460	66.770	97.5
10 BLK SPIKE	1/7/90	XXXXXXXXXX	68.460	64.250	93.9
11 BLK SPIKE	1/9/90	XXXXXXXXXX	68.460	67.630	98.8
12 BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	62.280	91.0
13 BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	64.320	94.0
14 BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.020	95.0
15 BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.380	95.5
16 BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	64.400	94.1
17 BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	60.610	88.5
18 BLK SPIKE	4/5/90	XXXXXXXXXX	68.460	67.600	98.7
19 BLK SPIKE	4/12/90	XXXXXXXXXX	68.460	66.820	97.6
20 BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	66.960	97.8
21 BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	68.250	99.7
22 BLK SPIKE	7/22/90	XXXXXXXXXX	68.460	71.920	105.1
23 BLK SPIKE	7/24/90	XXXXXXXXXX	68.460	64.090	93.6
24 16281B03	7/25/90	XXXXXXXXXX	68.460	62.940	91.9
25 16353Q13	7/25/90	XXXXXXXXXX	68.460	68.370	99.9
26 16526B22	9/4/90	XXXXXXXXXX	68.460	70.470	102.9
27 16539B17	9/5/90	XXXXXXXXXX	68.460	71.330	104.2
28 BLK SPIKE	9/7/90	XXXXXXXXXX	68.460	68.620	100.2
29 16752Q18	9/25/90	XXXXXXXXXX	68.460	65.120	95.1
30 16827B10	10/2/90	XXXXXXXXXX	68.460	68.980	100.8
31 16846B05	10/8/90	XXXXXXXXXX	68.460	68.010	99.3
32 16853B16	10/15/90	XXXXXXXXXX	684.600	624.760	91.3
33 16873B09	10/18/90	XXXXXXXXXX	68.460	69.601	101.7
34 16882B07	10/18/90	XXXXXXXXXX	68.460	69.903	102.1
35 16912B16	10/22/90	XXXXXXXXXX	68.460	67.115	98.0
36 17213B17	11/18/90	XXXXXXXXXX	684.60	661.39	96.6
37 17273B01	12/3/90	XXXXXXXXXX	68.46	68.69	100.3
38 BLK SPIKE	12/10/90	XXXXXXXXXX	68.46	63.59	92.9
39 BLK SPIKE	12/11/90	XXXXXXXXXX	68.46	63.22	92.3
40 BLK SPIKE	1/5/90	XXXXXXXXXX	68.46	67.28	98.3
41 17561B08	1/15/91	XXXXXXXXXX	68.46	68.89	100.6
42 17572Q06	1/29/91	XXXXXXXXXX	68.46	70.81	103.4
43 17669B05	1/29/91	XXXXXXXXXX	68.46	65.34	95.4
44 17570B09	2/4/91	XXXXXXXXXX	68.46	70.60	103.1
45 17587B08	2/4/91	XXXXXXXXXX	68.46	68.79	100.5
46 17699B15	2/5/91	XXXXXXXXXX	68.46	65.03	95.0
47					
48					
49					
50					

MEAN RECOVERY = 97.42
 STD(N-1) = 3.96
 2 STD(N-1) = 7.92
 3 STD(N-1) = 11.88

X	X+2S	X+3S	X-2S	X-3S
97.4	105.3	109.3	89.5	85.5
MEAN	UWL	UCL	LWL	LCL

000019

REV 6/89 FORM 340

B1636490



February 13, 1991

MGM27232.UB.SD

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard,
LMG Laboratory No. 17618

Dear Mr. Martin:

On January 21, 1991, the CH2M HILL Montgomery Laboratory received five samples with a request for analysis of selected organic and inorganic parameters.

The analytical results and associated quality control data are enclosed. The Purgeable Halocarbons/Aromatics analysis was performed at our Gainesville, Florida laboratory. A copy of their report is enclosed.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom/LMG

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.
- C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.
- E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.
- D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.
- A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.
- X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.
- JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

- DL** -- Dilution Run
- R** -- Rerun (may be followed by a digit to indicate multiple reruns)
- RD** -- Diluted Rerun
- RX** -- Re-extraction Analysis
- MS** -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)
- MSD** -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)
- QC_BLANK** -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17618

<u>CH2M HILL Sample No.</u>	<u>Sample Description</u>				
17618001	SAMPLE 211 W	01/19/91	PM	GRAB	SOIL
17618002	SAMPLE 211 E	01/19/91	PM	GRAB	SOIL
17618003	SAMPLE 211 N	01/19/91	PM	GRAB	SOIL
17618004	SAMPLE W1	01/19/91	PM	GRAB	
17618005	SAMPLE TRAVEL BLANK				

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Atten: MR. J. P. MARTIN

Sample Description: W 1 PM GRAB

Laboratory Sample Number: 17618004 Date Collected: 01/19/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	1.0	14	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Benzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Toluene	EPA601/602(MOD)	1.0	4.9	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	1.0	29	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	106	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	99	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000001



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: W 1 PM GRAB

Laboratory Sample Number: 17618004

Date Collected: 01/19/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: JMS

INRPRPT(v910124)

000002

REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 17618
 Date Received: 01/21/91

Sample Description: TRAVEL BLANK

Laboratory Sample Number: 17618005 Date Collected: 01/19/91 Matrix: WATER

Analytical Parameter		Method	Det Limit	Result	Units	Ana Date
Chloromethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chloromethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Bromomethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromomethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Vinyl chloride		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Vinyl chloride	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Chloroethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chloroethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Dichloromethane		EPA601/602(MOD)	1.0	1.9	ug/L	01/27/91
Dichloromethane	[Rep 01]	EPA601/602(MOD)	1.0	1.9	ug/L	01/29/91
Trichlorofluoromethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Trichlorofluoromethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,1-Dichloroethene		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1-Dichloroethene	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,1-Dichloroethene		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1-Dichloroethene	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
trans-1,2-Dichloroethene		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
trans-1,2-Dichloroethene	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Chloroform		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chloroform	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,2-Dichloroethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichloroethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,1,1-Trichloroethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,1-Trichloroethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Carbon tetrachloride		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Carbon tetrachloride	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Bromodichloromethane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromodichloromethane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,2-Dichloropropane		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichloropropane	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
cis-1,3-Dichloropropene		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
cis-1,3-Dichloropropene	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Trichloroethene		EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Trichloroethene	[Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)
000003

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91


Sample Description: TRAVEL BLANK

Laboratory Sample Number: 17618005 Date Collected: 01/19/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Dibromochloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Dibromochloromethane [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,2-Trichloroethane [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
trans-1,3-Dichloropropene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Bromoform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromoform [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Tetrachloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Tetrachloroethene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,2,2-Tetrachloroethane [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
tert-Butyl methyl ether [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Benzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Benzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Toluene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Toluene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Chlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chlorobenzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Ethylbenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Ethylbenzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Total Xylenes	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Total Xylenes [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,3-Dichlorobenzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,4-Dichlorobenzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichlorobenzene [Rep 01]	EPA601/602(MOD)	1.0	<1.0	ug/L	01/29/91
Bromochloromethane - SS	EPA601/602(MOD)	----	103	%rec	01/27/91
Bromochloromethane - SS [Rep 01]	EPA601/602(MOD)	----	100	%rec	01/29/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	90	%rec	01/27/91
a,a,a-Trifluorotoluene - SS [Rep 01]	EPA601/602(MOD)	----	93	%rec	01/29/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)
000004



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: TRAVEL BLANK

Laboratory Sample Number: 17618005 Date Collected: 01/19/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91
1,4-Dichlorobutane - SS [Rep 01]	EPA601/602(MOD)	----	NR	%rec	01/29/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91
Fluorobenzene - SS [Rep 01]	EPA601/602(MOD)	----	NR	%rec	01/29/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: JMS

INRPRPT(v910124)

000005



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW1

Date Collected: 01/21/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Benzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Toluene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	95	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	89	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000003

REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Atten: MR. J. P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW1


Date Collected: 01/21/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000007

REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW2

Date Collected: 01/21/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromomethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Vinyl chloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Dichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chloroform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromodichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Trichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Dibromochloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromoform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Tetrachloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Benzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Toluene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Chlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Ethylbenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Total Xylenes	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/27/91
Bromochloromethane - SS	EPA601/602(MOD)	----	92	%rec	01/27/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	101	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000008



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW2 Date Collected: 01/21/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000009



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW3

Date Collected: 01/21/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Bromomethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Vinyl chloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Chloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Dichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Chloroform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Bromodichloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Trichloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Dibromochloromethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Bromoform	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Tetrachloroethene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Benzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Toluene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Chlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Ethylbenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Total Xylenes	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	<1.0	ug/L	01/28/91
Bromochloromethane - SS	EPA601/602(MOD)	----	107	%rec	01/28/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	93	%rec	01/28/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000010



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17618ZW3 Date Collected: 01/21/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/28/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/28/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000011

CASE NARRATIVE FOR PNA
GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES

CLIENT: BANG

CASE NO. : N/A

CONTRACT NO.: N/A

LAB NO. : 17618

SDG NO.: N/A

I. RECEIPT

A. DATE : January 21, 1991

B. SAMPLE INFORMATION

<u>LAB ID</u>	<u>CLIENT ID</u>	<u>SAMPLE MATRIX</u>	<u>DATE SAMPLED</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
17618004	W 1	WATER	01/19/91	01/22/91	01/26/91
C01221B1	QC BLANK	WATER	NA	01/22/91	01/25/91

C. Documentation

Exceptions : No exceptions were encountered.

II. EXTRACTION

- A. Holding Times: All holding times were met.
- B. Extraction
Exceptions : No exceptions were encountered.

III. ANALYSIS

- A. Holding Times: All holding times were met.
- B. Analytical
Exceptions : No exceptions were encountered.

IV. QUALITY CONTROL

- A. Method Blank : All associated method blanks met acceptable QC criteria.
- B. Surrogate
Recoveries : The PNA surrogate recovery for sample 17618004 (W 1) was somewhat low. Re-extraction was not performed due to a limitation of raw sample available.
- C. Matrix Spike
Results : Matrix spike results have not been reported with this contract.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for 
Herb Kelly
Manager, Organic Division


Date

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: 17618004
 Client Sample ID: W 1

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 01/22/91
 Date Analyzed: 01/26/91
 Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L		CAS Number		ug/L	
91-20-3	Naphthalene	10	U				
91-57-6	2-Methylnaphthalene . . .	10	U				
90-12-0	1-Methylnaphthalene . . .	4	U				
208-96-8	Acenaphthylene	2	U				
83-32-9	Acenaphthene	4					
86-73-7	Fluorene.	4	U				
85-01-8	Phenanthrene.	7					
120-12-7	Anthracene.	4	U				
206-44-0	Fluoranthene.	8					
129-00-0	Pyrene.	5					
56-55-3	Benzo(a)anthracene. . . .	3					
218-01-9	Chrysene.	3					
205-99-2	Benzo(b)fluoranthene . .	3					
207-08-9	Benzo(k)fluoranthene . .	2					
50-32-8	Benzo(a)pyrene.	3					
193-39-5	Indeno(1,2,3-cd)pyrene. .	2					
53-70-3	Dibenzo(a,h)anthracene. .	2	U				
191-24-2	Benzo(g,h,i)perylene. . .	2	U				
Terphenyl-d14 - SS		41					

- U - Analyzed for but not detected.
- B - Detected in QC blank.
- JX - Detected, concentration estimated.
- SS - Surrogate Standard reported as percent recovery.

Comments: The detection limits for naphthalene, 2-methylnaphthalene, 1-methylnaphthalene, fluorene, and anthracene were raised due to chemical interferences which were not removed during the cleanup efforts.

Form I

Handwritten signature



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 01/22/91
Lab Sample ID: C01221B1 Sample Matrix: WATER Date Analyzed: 01/25/91
Client Sample ID: QC BLANK Percent Moisture: Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	2 U		
91-57-6	2-Methylnaphthalene . . .	2 U		
90-12-0	1-Methylnaphthalene . . .	2 U		
208-96-8	Acenaphthylene	2 U		
83-32-9	Acenaphthene	2 U		
86-73-7	Fluorene.	2 U		
85-01-8	Phenanthrene.	2 U		
120-12-7	Anthracene.	2 U		
206-44-0	Fluoranthene.	2 U		
129-00-0	Pyrene.	2 U		
56-55-3	Benzo(a)anthracene. . . .	2 U		
218-01-9	Chrysene.	2 U		
205-99-2	Benzo(b)fluoranthene . .	2 U		
207-08-9	Benzo(k)fluoranthene . .	2 U		
50-32-8	Benzo(a)pyrene.	2 U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	2 U		
53-70-3	Dibenzo(a,h)anthracene. .	2 U		
191-24-2	Benzo(g,h,i)perylene. . .	2 U		

Terphenyl-d14 - SS 109

- U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

000015

RELATIVE RESPONSE FACTORS

COMPOUND	LEVEL 1 40 ppm	LEVEL 2 30 ppm	LEVEL 3 20 ppm	LEVEL 4 10 ppm	LEVEL 5 2 ppm	MEAN	RSD	COMPOUND
#I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 1
#2,3-BENZOFURAN	0.657764	0.614560	0.575355	0.542839	0.563471	0.5908	7.7%	#2,3-BENZOFURAN
2,3-BENZOFURAN	0.722422	0.686593	0.643544	0.623493	0.646110	0.6644	6.0%	2,3-BENZOFURAN
I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 1
#NAPHTHALENE	1.103834	1.097440	0.956063	0.932835	0.938658	1.0058	8.7%	#NAPHTHALENE
#2-METHYLNAPHTHALE	1.126356	1.143455	1.004466	1.009805	1.020245	1.0609	6.4%	#2-METHYLNAPHTHALENE
#1-METHYLNAPHTHALE	1.059085	1.080122	0.977524	0.978504	1.010199	1.0211	4.6%	#1-METHYLNAPHTHALENE
NAPHTHALENE	0.918473	0.939021	0.847078	0.849307	0.838226	0.8784	5.3%	NAPHTHALENE
#I.S. 2	1.042108	1.020315	1.103782	1.074129	1.075912	1.0632	3.1%	#I.S. 2
#I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 3
2-METHYLNAPHTHALENE	0.972589	0.977784	0.891510	0.911757	0.940537	0.9388	4.0%	2-METHYLNAPHTHALENE
1-METHYLNAPHTHALENE	0.946214	0.961942	0.866259	0.903773	0.924863	0.9206	4.1%	1-METHYLNAPHTHALENE
#ACENAPHTHYLENE	0.581821	0.621531	0.643068	0.626671	0.592315	0.6131	4.1%	#ACENAPHTHYLENE
#ACENAPHTHENE	0.530167	0.565748	0.599929	0.588292	0.569438	0.5707	4.7%	#ACENAPHTHENE
I.S. 2	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 2
#FLUORENE	0.523391	0.558260	0.586351	0.579246	0.570618	0.5636	4.4%	#FLUORENE
ACENAPHTHYLENE	0.900520	0.910383	0.853264	0.846870	0.872686	0.8767	3.2%	ACENAPHTHYLENE
ACENAPHTHENE	0.819254	0.837017	0.797434	0.796121	0.745107	0.7990	4.3%	ACENAPHTHENE
FLUORENE	0.830045	0.856964	0.807842	0.828215	0.851958	0.8350	2.4%	FLUORENE
I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 3
#PHENANTHRENE	0.485105	0.521728	0.540406	0.541450	0.565408	0.5308	5.6%	#PHENANTHRENE
#ANTHRACENE	0.474181	0.510269	0.544465	0.547471	0.572022	0.5297	7.2%	#ANTHRACENE
#I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 4
PHENANTHRENE	0.512455	0.534161	0.528176	0.529237	0.528046	0.5264	1.6%	PHENANTHRENE
ANTHRACENE	0.512922	0.534399	0.529196	0.527044	0.465621	0.5138	5.5%	ANTHRACENE
#FLUORANTHENE	0.447205	0.480133	0.503503	0.507970	0.505495	0.4889	5.3%	#FLUORANTHENE
I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 4
#PYRENE	0.440412	0.467344	0.485696	0.486807	0.493632	0.4748	4.5%	#PYRENE
#TERPHENYL-d14	0.505039	0.536004	0.552178	0.565243	0.565601	0.5448	4.6%	#TERPHENYL-d14
FLUORANTHENE	0.471558	0.482432	0.481897	0.472096	0.428238	0.4672	4.8%	FLUORANTHENE
#I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 5
PYRENE	0.463225	0.477567	0.481809	0.484458	0.490833	0.4796	2.2%	PYRENE
TERPHENYL-d14	0.515651	0.531604	0.536432	0.539532	0.536028	0.5318	1.8%	TERPHENYL-d14
#BENZO(A)ANTHRACENE	0.928145	0.982206	1.027677	1.045165	1.066790	1.0100	5.5%	#BENZO(A)ANTHRACENE
#CHRYSENE	0.948385	0.999003	1.038127	1.050644	1.031060	1.0134	4.1%	#CHRYSENE
I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 5
BENZO(A)ANTHRACENE	0.955965	0.976459	0.970303	0.973406	0.993869	0.9740	1.4%	BENZO(A)ANTHRACENE
CHRYSENE	0.964907	0.990228	0.984619	0.987967	0.988188	0.9832	1.1%	CHRYSENE
#BENZO(B)FLUORANTH	0.891987	0.938529	0.951858	0.976774	1.011299	0.9541	4.7%	#BENZO(B)FLUORANTHENE
#BENZO(K)FLUORANTH	0.903425	0.940813	0.977032	0.978219	1.012209	0.9623	4.3%	#BENZO(K)FLUORANTHENE
#BENZO(A)PYRENE	0.942453	0.970441	0.987022	1.011344	1.020765	0.9864	3.2%	#BENZO(A)PYRENE
#I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 6
BENZO(B)FLUORANTHENE	0.893191	0.906143	0.888723	0.903944	0.916836	0.9018	1.2%	BENZO(B)FLUORANTHENE
BENZO(K)FLUORANTHENE	0.926087	0.945611	0.937658	0.937095	0.921355	0.9336	1.0%	BENZO(K)FLUORANTHENE
BENZO(A)PYRENE	0.936025	0.948006	0.935947	0.944944	0.947181	0.9424	0.6%	BENZO(A)PYRENE
I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 6
#INDENO(123-CD)PYR	0.969261	1.013854	1.029134	1.071122	1.147291	1.0461	6.4%	#INDENO(123-CD)PYRENE
#DIBENZO(AH)ANTHRA	0.973338	1.008078	1.019165	1.053169	1.120081	1.0348	5.4%	#DIBENZO(AH)ANTHRACENE
#BENZO(GHI)PERYLENE	0.975810	1.002238	0.994982	1.031620	1.039068	1.0087	2.6%	#BENZO(GHI)PERYLENE
INDENO(123-CD)PYRENE	0.961614	0.982016	0.963894	0.997804	1.042404	0.9895	3.3%	INDENO(123-CD)PYRENE
DIBENZO(AH)ANTHRACENE	0.996601	0.995139	0.971141	0.977414	1.027841	0.9936	2.2%	DIBENZO(AH)ANTHRACENE
BENZO(GHI)PERYLENE	0.967522	0.979849	0.941809	0.966693	0.970803	0.9653	1.5%	BENZO(GHI)PERYLENE

000016

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000

GC INJECTION LOG NUMBER: D4134

INSTRUMENT: 04 INITIAL CALIBRATION: ~~DEC 10, 1990~~ JAN 18, 1991 Jm

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.56170	-4.9
2,3-BENZOFURAN	0.72092	0.66443	0.64980	-2.2
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.10198	9.6
#2-METHYLNAPHTHALE	1.01468	1.06087	1.16323	9.6
#1-METHYLNAPHTHALE	0.98706	1.02109	1.11350	9.1
NAPHTHALENE	0.89772	0.87842	0.94340	7.4
#I.S. 2	1.16823	1.06325	1.03745	-2.4
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALE	0.88049	0.93884	0.98885	5.3
1-METHYLNAPHTHALE	0.86430	0.92061	0.97265	5.7
#ACENAPHTHYLENE	0.71027	0.61308	0.67841	10.7
#ACENAPHTHENE	0.65652	0.57071	0.62285	9.1
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.60948	8.1
ACENAPHTHYLENE	1.04975	0.87674	0.93251	6.4
ACENAPHTHENE	0.97900	0.79899	0.86543	8.3
FLUORENE	0.98383	0.83500	0.88178	5.6
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.56046	5.6
#ANTHRACENE	0.62901	0.52968	0.55939	5.6
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.54122	2.8
ANTHRACENE	0.62636	0.51384	0.54409	5.9
#FLUORANTHENE	0.58343	0.48886	0.50960	4.2
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.49450	4.2
#TERPHENYL-d14	0.60379	0.54481	0.56497	3.7
FLUORANTHENE	0.57517	0.46724	0.48763	4.4
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.48854	1.9
TERPHENYL-d14	0.58693	0.53185	0.54465	2.4
#BENZO(A)ANTHRACEN	1.11793	1.01000	1.03607	2.6
#CHRYSENE	1.10824	1.01344	1.05063	3.7
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO(A)ANTHRACENE	1.12438	0.97400	0.99738	2.4
CHRYSENE	1.09070	0.98318	1.01089	2.8
#BENZO(B)FLUORANTH	1.01718	0.95409	0.96124	0.7
#BENZO(K)FLUORANTH	1.08931	0.96234	0.98853	2.7
#BENZO(A)PYRENE	1.04437	0.98640	1.00627	2.0
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO(B)FLUORANTHE	1.03038	0.90177	0.91299	1.2
BENZO(K)FLUORANTHE	1.08529	0.93356	0.96294	3.1
BENZO(A)PYRENE	1.04589	0.94242	0.96406	2.3
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO(123-CD)PYR	1.05372	1.04613	1.06750	2.0
#DIBENZO(AH)ANTHRA	1.03899	1.03477	1.05529	2.0

000017

INDENO(123-CD)PYRE	1.08008	0.98955	1.01274	2.3
DIBENZO(AH)ANTHRAC	1.06174	0.99363	1.01892	2.5
BENZO(GHI)PERYLENE	0.95157	0.96534	0.98981	2.5

$$\text{PERCENT DIFFERENCE} = \frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$$

D 4134

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000

GC INJECTION LOG NUMBER: D4145

INSTRUMENT: 04 INITIAL CALIBRATION: JAN 10, 1991
DEC 10, 1990 JKW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.55767	-5.6
2,3-BENZOFURAN	0.72092	0.66443	0.65184	-1.9
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.14800	14.1
#2-METHYLNAPHTHALE	1.01468	1.06087	1.19580	12.7
#1-METHYLNAPHTHALE	0.98706	1.02109	1.14790	12.4
NAPHTHALENE	0.89772	0.87842	0.96265	9.6
#I.S. 2	1.16823	1.06325	1.02606	-3.5
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALEN	0.88049	0.93884	1.02685	9.4
1-METHYLNAPHTHALEN	0.86430	0.92061	1.00585	9.3
#ACENAPHTHYLENE	0.71027	0.61308	0.68134	11.1
#ACENAPHTHENE	0.65652	0.57071	0.62372	9.3
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.61048	8.3
ACENAPHTHYLENE	1.04975	0.87674	0.95530	9.0
ACENAPHTHENE	0.97900	0.79899	0.88073	10.2
FLUORENE	0.98383	0.83500	0.90019	7.8
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.56311	6.1
#ANTHRACENE	0.62901	0.52968	0.56362	6.4
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.54538	3.6
ANTHRACENE	0.62636	0.51384	0.54739	6.5
#FLUORANTHENE	0.58343	0.48886	0.51212	4.8
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.50095	5.5
#TERPHENYL-d14	0.60379	0.54481	0.56684	4.0
FLUORANTHENE	0.57517	0.46724	0.49421	5.8
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.49513	3.2
TERPHENYL-d14	0.58693	0.53185	0.54932	3.3
#BENZO(A)ANTHRACEN	1.11793	1.01000	1.04245	3.2
#CHRYSENE	1.10824	1.01344	1.05625	4.2
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO(A)ANTHRACENE	1.12438	0.97400	1.00367	3.0
CHRYSENE	1.09070	0.98318	1.01944	3.7
#BENZO(B)FLUORANTH	1.01718	0.95409	0.97631	2.3
#BENZO(K)FLUORANTH	1.08931	0.96234	0.97794	1.6
#BENZO(A)PYRENE	1.04437	0.98640	1.00555	1.9
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO(B)FLUORANTHE	1.03038	0.90177	0.93462	3.6
BENZO(K)FLUORANTHE	1.08529	0.93356	0.95706	2.5
BENZO(A)PYRENE	1.04589	0.94242	0.96966	2.9
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO(123-CD)PYR	1.05372	1.04613	1.04845	0.2
#INDENO(123-CD)PYR	1.05372	1.04613	1.04845	-0.5

000019

#BENZO(GHI)PERYLENE	0.72877	1.00877	1.02071	1.0
INDENO(123-CD)PYRE	1.08008	0.98955	1.00821	1.9
DIBENZO(AH)ANTHRAC	1.06174	0.99363	1.00415	1.1
BENZO(GHI)PERYLENE	0.95157	0.96534	0.98992	2.5

(Continuing RRF - Mean RRF) x 100
 PERCENT DIFFERENCE = $\frac{\text{---}}{\text{Mean RRF}}$

D4145

000020

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000

GC INJECTION LOG NUMBER: D4149

INSTRUMENT: 04

INITIAL CALIBRATION: JAN 18, 1991
DEC 10, 1990 JNW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
=====	=====	=====	=====	=====
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.55867	-5.4
2,3-BENZOFURAN	0.72092	0.66443	0.65307	-1.7
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.16314	15.6
#2-METHYLNAPHTHALE	1.01468	1.06087	1.20203	13.3
#1-METHYLNAPHTHALE	0.98706	1.02109	1.15757	13.4
NAPHTHALENE	0.89772	0.87842	0.97895	11.4
#I.S. 2	1.16823	1.06325	1.02856	-3.3
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALEN	0.88049	0.93884	1.03113	9.8
1-METHYLNAPHTHALEN	0.86430	0.92061	0.99975	8.6
#ACENAPHTHYLENE	0.71027	0.61308	0.67974	10.9
#ACENAPHTHENE	0.65652	0.57071	0.62287	9.1
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.60794	7.9
ACENAPHTHYLENE	1.04975	0.87674	0.95100	8.5
ACENAPHTHENE	0.97900	0.79899	0.87291	9.3
FLUORENE	0.98383	0.83500	0.89933	7.7
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.56438	6.3
#ANTHRACENE	0.62901	0.52968	0.55875	5.5
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.54320	3.2
ANTHRACENE	0.62636	0.51384	0.54559	6.2
#FLUORANTHENE	0.58343	0.48886	0.51024	4.4
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.49640	4.6
#TERPHENYL-d14	0.60379	0.54481	0.56901	4.4
FLUORANTHENE	0.57517	0.46724	0.49724	6.4
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.48174	0.5
TERPHENYL-d14	0.58693	0.53185	0.54665	2.8
#BENZO (A) ANTHRACEN	1.11793	1.01000	1.03487	2.5
#CHRYSENE	1.10824	1.01344	1.05496	4.1
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO (A) ANTHRACENE	1.12438	0.97400	1.00976	3.7
CHRYSENE	1.09070	0.98318	1.02559	4.3
#BENZO (B) FLUORANTH	1.01718	0.95409	0.96394	1.0
#BENZO (K) FLUORANTH	1.08931	0.96234	0.99085	3.0
#BENZO (A) PYRENE	1.04437	0.98640	1.00430	1.8
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO (B) FLUORANTHE	1.03038	0.90177	0.92774	2.9
BENZO (K) FLUORANTHE	1.08529	0.93356	0.95822	2.6
BENZO (A) PYRENE	1.04589	0.94242	0.96436	2.3
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO (123-CD) PYR	1.05372	1.04613	1.03601	-1.0
#DIBENZO (AH) ANTHRA	1.03899	1.03477	1.01946	-1.5
#BENZO (GHI) PERYLEN	0.92894	1.00874	0.99849	-1.0
INDENO (123-CD) PYRE	1.08008	0.98955	1.00940	2.0
DIBENZO (AH) ANTHRA	1.04174	0.99343	1.00251	0.9

000021

BENZO(GH)PERYLENE

0.78137

0.78337

1.00180

0.0

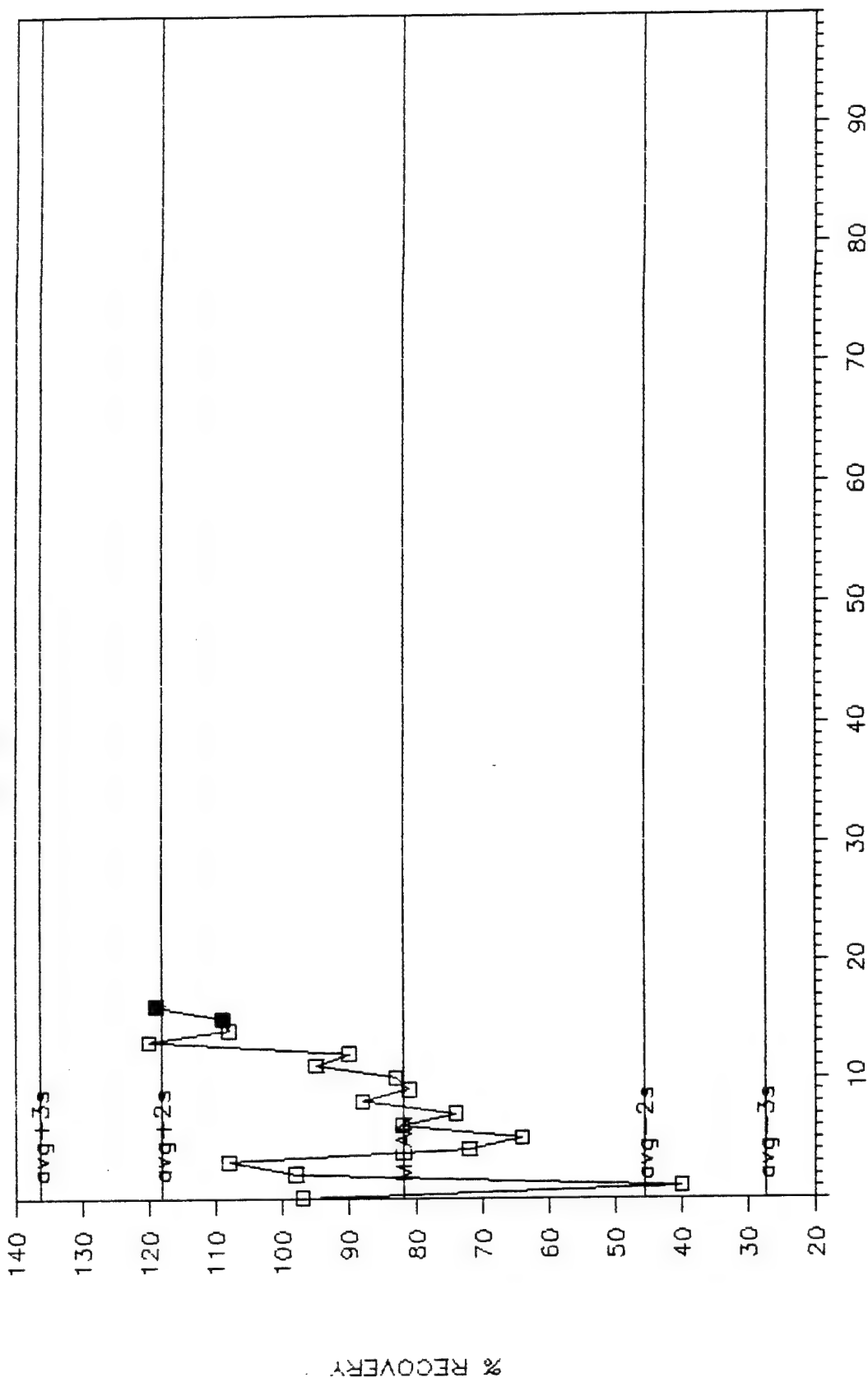
$$\text{PERCENT DIFFERENCE} = \frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$$

D4149

000022

SURROGATE RECOVERY - PNA

TERPHENYL-D14 - WATER



000023

WATER (CONT. EXT.)

PNAs

0

SAMPLE #	DATE	T-D14 SURROGATE % REC.	T-D14 ACCEPT. OUTLIER ? ?						COMMENTS
1	W11139B1	12/05/89	97.0	YES	ERR	NO	NO	NO	NO
2	W11209B1	12/11/89	40.0	YES	ERR	NO	NO	NO	NO
3	C12059B1	12/16/89	98.0	YES	ERR	NO	NO	NO	NO
4	C12119B1	12/16/89	108.0	YES	ERR	NO	NO	NO	NO
5	C03050B1	3/11/90	72.0	YES	ERR	NO	NO	NO	NO
6	C03120B1	3/17/90	64.0	YES	ERR	NO	NO	NO	NO
7	C03300B1	4/16/90	82.0	YES	ERR	NO	NO	NO	NO
8	C04090B1	4/18/90	74.0	YES	ERR	NO	NO	NO	NO
9	C07060B1	7/13/90	88.0	YES	ERR	NO	NO	NO	NO
10	C07190B1	7/27/90	81.0	YES	ERR	NO	NO	NO	NO
11	C09190B1	9/25/90	83.0	YES	ERR	NO	NO	NO	NO
12	C09210B1	9/25/90	95.0	YES	ERR	NO	NO	NO	NO
13	C09240B1	10/6/90	90.0	YES	ERR	NO	NO	NO	NO
14	C09250B1	10/7/90	120.0	YES	ERR	NO	NO	NO	NO
15	C09270B1	10/7/90	108.0	YES	ERR	NO	NO	NO	NO
→ 16	C01221B1	1/25/91	109.0	YES	ERR	NO	NO	NO	NO
→ 17	C01231B1	1/26/91	119.0	YES	ERR	NO	NO	NO	NO
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000024

CASE NARRATIVE
Cations

Batch Number: 17618

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:
All holding times were met.

II. Analysis:

- A. Blanks:
All acceptance criteria were met.
- B. Calibration:
All acceptance criteria were met.
- C. ICP Interference Check Sample:
Not required.
- D. Spike Sample Analysis:
All acceptance criteria were met.
- E. Duplicate Sample Analysis:
All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
All acceptance criteria were met.
- G. ICP Serial Dilution:
Not required for this level QC.
- H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 13 FEB 91

CASE NARRATIVE
General Chemistry

Batch Number: 17618


Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED:  DATE: 13 FEB 91
Kevin A. Sanders
Inorganic Division Manager



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: 211 W PM GRAB

Laboratory Sample Number: 17618001

Date Collected: 01/19/91

Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Lead	EPA239.2/SW7421	3.7	42.5	mg/kg	01/24/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	10.7	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE

Reviewed by: 

INRPRPT(v910124)

000027



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: 211 E PM GRAB
Laboratory Sample Number: 17618002 Date Collected: 01/19/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NON-IGNITABLE	----	02/05/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.1	4.2	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE

Reviewed by: 

INRPRPT(v910124)

000028



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: 211 N PM GRAB

Laboratory Sample Number: 17618003 Date Collected: 01/19/91 Matrix: SOIL

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	2.0	21.4	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE

Reviewed by: 

INRPRPT(v910124)



REPORT OF ANALYTICAL RESULTS

Date: 02/06/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17618
Date Received: 01/21/91

Sample Description: METHOD BLANK
Laboratory Sample Number: 17618ZS1 Date Collected: 01/21/91 Matrix: SOIL BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/24/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.6	<1.6	mg/Kg	02/04/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NA = NOT APPLICABLE

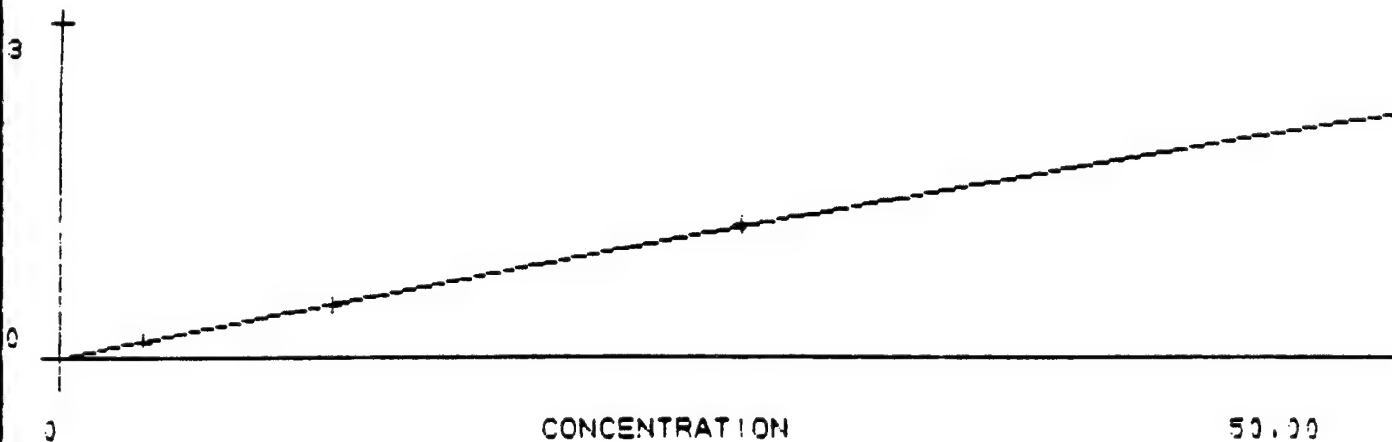
Reviewed by: 

INRPRPT(v910124)

000030

INITIAL CALIBRATION

LEAD



OF 5 TIME: 0 TEMPERATURE: 25 AS POSITION: 27
TIME: 17:01

CONCENTRATION (ug/L)

ABSORBANCE

3.0	0.042
10.0	0.081
25.0	0.160
50.0	0.307

Correlation Coefficient = 0.9997

000031

50 MM

INITIAL CALIBRATION

QUADRATIC REGRESSION

DATE = 2/4/91
ANALYST = JAB
PARAMETER = O&GIW, O&GIS, TPHS, TPHW

CONC (X)	mg/1000 ml	%T	ABS (Y)	Y^2	PRED'D X
0.0493		98.71	0.0056	0.0000	0.031
0.2054		94.38	0.0251	0.0006	0.216
0.4108		89.75	0.0470	0.0022	0.423
2.0540		60.49	0.2183	0.0477	2.048
4.1075		36.71	0.4352	0.1894	4.109

Regression Output:

Constant	-0.02
Std Err of Y Est	0.02
R Squared	0.9999486 0.999974
No. of Observations	5.00
Degrees of Freedom	2.00

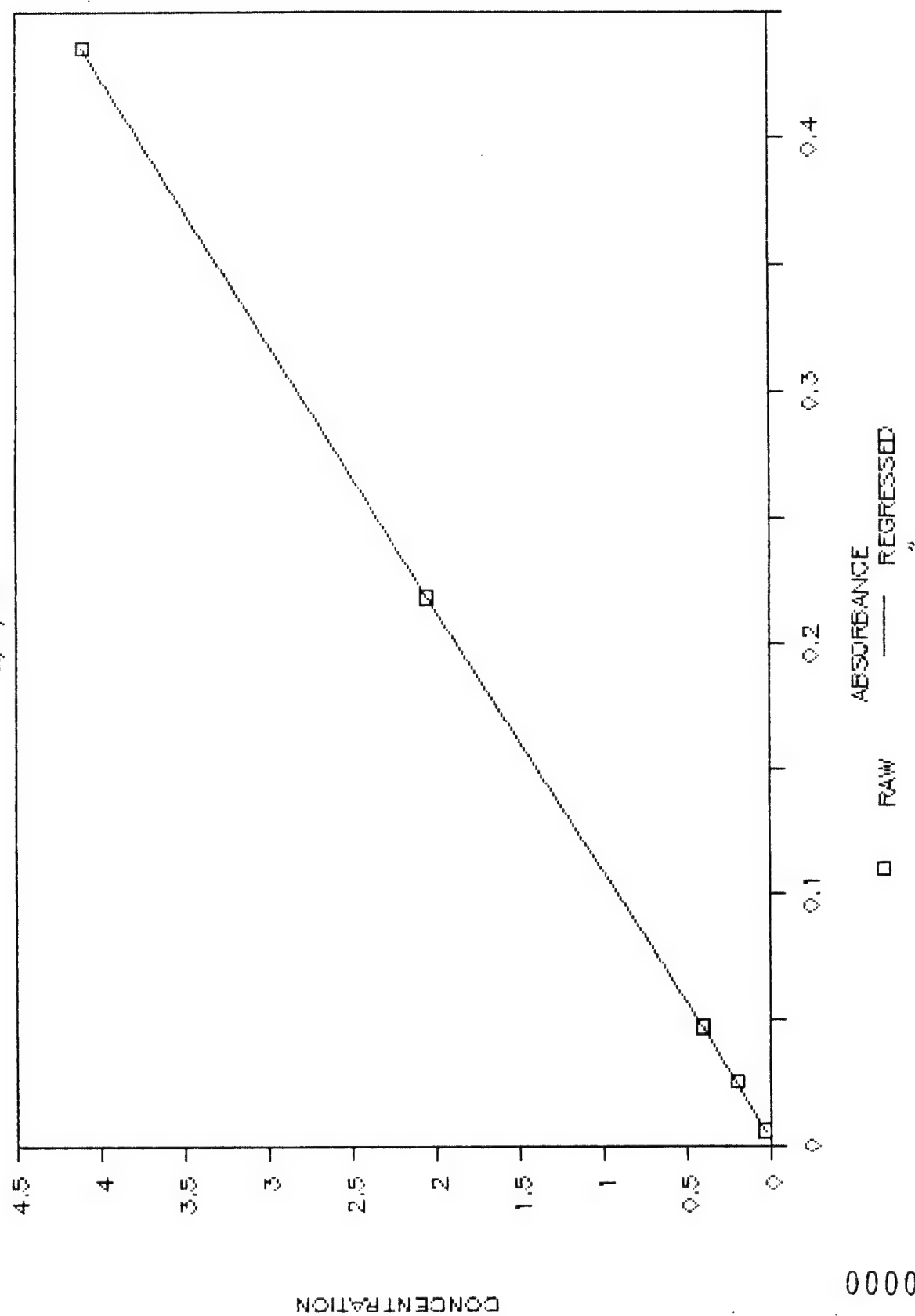
X Coefficient(s)	9.47	0.05
Std Err of Coef.	0.21	0.46

X = 9.47 Y + 0.05 Y^2 - 0.02205

Reviewed by
Sham Ruff
2-5-91
000032
9.5

INITIAL CALIBRATION - TPH, O&G

2/4/91



000033

LEVEL 1

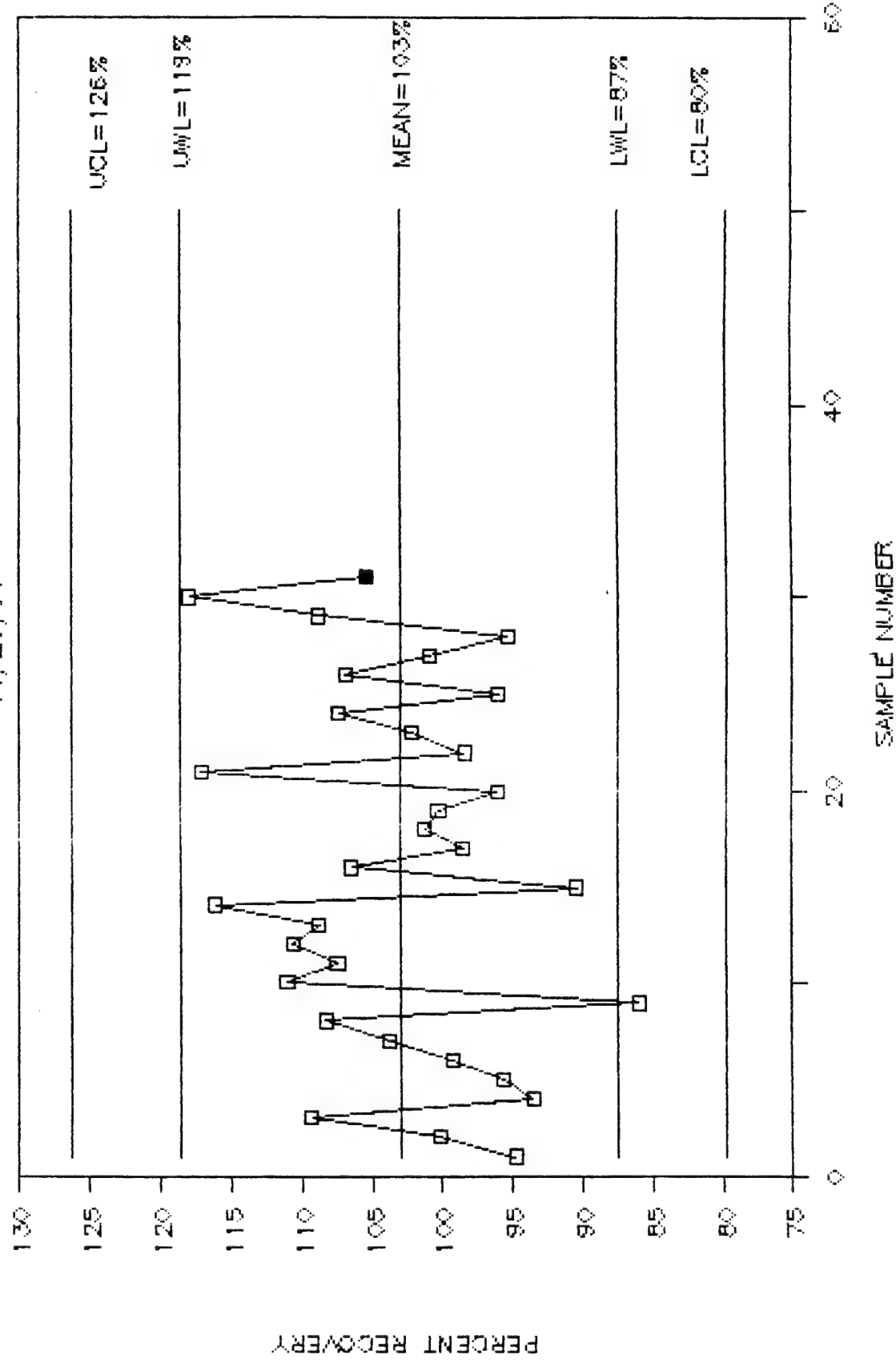
Batch Number(s): 17618

[illegible]

000034

LABORATORY CONTROL SAMPLE (SOIL) - LEAD

01/25/91



000000

SHORT-TERM DATA SUMMARY
 LEAD LABORATORY CONTROL SAMPLE
 01/25/91 SOIL MATRIX - FURNACE

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC	
1	16293	16JULY90	XXXXXXXXXX	236	223.700	94.8
2	16356	23JULY90	XXXXXXXXXX	236	236.400	100.2
3	16397	26JULY90	XXXXXXXXXX	236	257.900	109.3
4	16356	31JULY90	XXXXXXXXXX	236	220.800	93.6
5	16492	07AUG90	XXXXXXXXXX	236	225.700	95.6
6	16526	16AUG90	XXXXXXXXXX	236	234.300	99.3
7	16663	31AUG90	XXXXXXXXXX	236	244.800	103.7
8	16712	06SEPT90	XXXXXXXXXX	236	255.500	108.3
9	16823	19SEPT90	XXXXXXXXXX	236	202.900	86.0
10	16835	01OCT90	XXXXXXXXXX	236	262.000	111.0
11	16906	02OCT90	XXXXXXXXXX	236	253.600	107.5
12	16923	12OCT90	XXXXXXXXXX	236	261.000	110.6
13	17033	17OCT90	XXXXXXXXXX	236	256.700	108.8
14	16931	19OCT90	XXXXXXXXXX	236	274.000	116.1
15	17037	22OCT90	XXXXXXXXXX	236	213.400	90.4
16	16992	29OCT90	XXXXXXXXXX	236	251.100	106.4
17	17103	05NOV90	XXXXXXXXXX	236	232.400	98.5
18	17093	07NOV90	XXXXXXXXXX	236	238.900	101.2
19	17147	12NOV90	XXXXXXXXXX	236	236.600	100.3
20	17179	12NOV90	XXXXXXXXXX	236	226.700	96.1
21	17268	06DEC90	XXXXXXXXXX	236	276.400	117.1
22	17320	07DEC90	XXXXXXXXXX	236	232.200	98.4
23	17349	07DEC90	XXXXXXXXXX	236	241.100	102.2
24	11/26/90	07DEC90	XXXXXXXXXX	236	253.200	107.3
25	12/10/90	14DEC90	XXXXXXXXXX	236	226.600	96.0
26	12/14/90	18DEC90	XXXXXXXXXX	236	252.100	106.8
27	12/20/90	26DEC90	XXXXXXXXXX	236	238.200	100.9
28	01/02/91	04JAN91	XXXXXXXXXX	236	225.000	95.3
29	01/08/91	15JAN91	XXXXXXXXXX	236	256.700	108.8
30	01/15/91	16JAN91	XXXXXXXXXX	236	278.300	117.9
31	01/23/91	24JAN91	XXXXXXXXXX	236	248.700	105.4

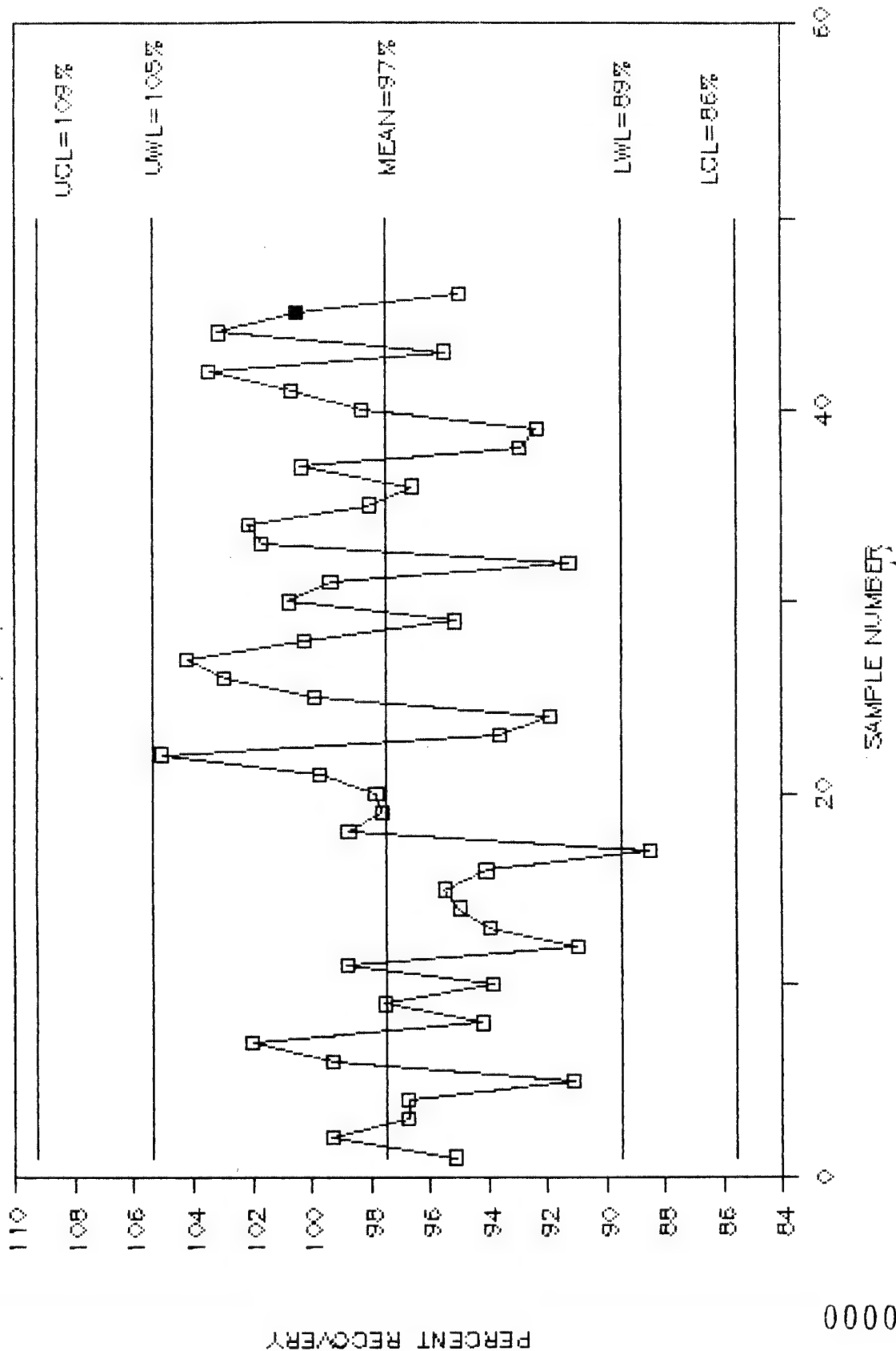
MEAN RECOVERY = 103.0194
 STD (N-1) = 7.775340
 2 STD (N-1) = 15.55068
 3 STD (N-1) = 23.32602

X	X+2S	X+3S	X-2S	X-3S
103.0	118.6	126.3	87.5	79.7
MEAN	UWL	UCL	LWL	LCL

000036

LAB CONTROL SAMPLE - TPH - SOIL BLANK SPIKE

02/06/91



430000

SHORT-TERM DATA SUMMARY
 TPH SOIL LABORATORY CONTROL SAMPLE
 02/06/91 BLANK SPIKE SOIL

	LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	13548501	6/5/89	XXXXXXXXXX	68.460	65.109	95.1
2	13576510	6/16/89	XXXXXXXXXX	68.460	67.993	99.3
3	BLK SPIKE	6/28/89	XXXXXXXXXX	68.460	66.230	96.7
4	BLK SPIKE	6/30/89	XXXXXXXXXX	68.460	66.230	96.7
5	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	62.370	91.1
6	BLK SPIKE	8/11/89	XXXXXXXXXX	68.460	67.970	99.3
7	BLK SPIKE	9/7/89	XXXXXXXXXX	68.460	69.830	102.0
8	BLK SPIKE	9/22/89	XXXXXXXXXX	68.460	64.510	94.2
9	BLK SPIKE	1/4/90	XXXXXXXXXX	68.460	66.770	97.5
10	BLK SPIKE	1/7/90	XXXXXXXXXX	68.460	64.250	93.9
11	BLK SPIKE	1/9/90	XXXXXXXXXX	68.460	67.630	98.8
12	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	62.280	91.0
13	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	64.320	94.0
14	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.020	95.0
15	BLK SPIKE	1/15/90	XXXXXXXXXX	68.460	65.380	95.5
16	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	64.400	94.1
17	BLK SPIKE	3/12/90	XXXXXXXXXX	68.460	60.610	88.5
18	BLK SPIKE	4/5/90	XXXXXXXXXX	68.460	67.600	98.7
19	BLK SPIKE	4/12/90	XXXXXXXXXX	68.460	66.820	97.6
20	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	66.960	97.8
21	BLK SPIKE	6/25/90	XXXXXXXXXX	68.460	68.250	99.7
22	BLK SPIKE	7/22/90	XXXXXXXXXX	68.460	71.920	105.1
23	BLK SPIKE	7/24/90	XXXXXXXXXX	68.460	64.090	93.6
24	16281B03	7/25/90	XXXXXXXXXX	68.460	62.940	91.9
25	16353Q13	7/25/90	XXXXXXXXXX	68.460	68.370	99.9
26	16526B22	9/4/90	XXXXXXXXXX	68.460	70.470	102.9
27	16539B17	9/5/90	XXXXXXXXXX	68.460	71.330	104.2
28	BLK SPIKE	9/7/90	XXXXXXXXXX	68.460	68.620	100.2
29	16752Q18	9/25/90	XXXXXXXXXX	68.460	65.120	95.1
30	16827B10	10/2/90	XXXXXXXXXX	68.460	68.980	100.8
31	16846B05	10/8/90	XXXXXXXXXX	68.460	68.010	99.3
32	16853B16	10/15/90	XXXXXXXXXX	684.600	624.760	91.3
33	16873B09	10/18/90	XXXXXXXXXX	68.460	69.601	101.7
34	16882B07	10/18/90	XXXXXXXXXX	68.460	69.903	102.1
35	16912B16	10/22/90	XXXXXXXXXX	68.460	67.115	98.0
36	17213B17	11/18/90	XXXXXXXXXX	684.60	661.39	96.6
37	17273B01	12/3/90	XXXXXXXXXX	68.46	68.69	100.3
38	BLK SPIKE	12/10/90	XXXXXXXXXX	68.46	63.59	92.9
39	BLK SPIKE	12/11/90	XXXXXXXXXX	68.46	63.22	92.3
40	BLK SPIKE	1/5/90	XXXXXXXXXX	68.46	67.28	98.3
41	17561B08	1/15/91	XXXXXXXXXX	68.46	68.89	100.6
42	17572Q06	1/29/91	XXXXXXXXXX	68.46	70.81	103.4
43	17669B05	1/29/91	XXXXXXXXXX	68.46	65.34	95.4
44	17570B09	2/4/91	XXXXXXXXXX	68.46	70.60	103.1
45	17587B08	2/4/91	XXXXXXXXXX	68.46	68.79	100.5
46	17699B15	2/5/91	XXXXXXXXXX	68.46	65.03	95.0
47						
48						
49						
50						

MEAN RECOVERY = 97.42
 STD(N-1) = 3.96
 2 STD(N-1) = 7.92
 3 STD(N-1) = 11.88

X X+2S X+3S X-2S X-3S
 97.4 105.3 109.3 89.5 85.5
 MEAN UWL UCL LWL LCL

000038



Client: CH2M HILL/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Sample Number: 89398-99
Date Received: 01/23/91

Dear Client:

The Gainesville Organics Laboratory received your samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.

If you should have any questions concerning the results please contact us. Thank you.

Sincerely,

Tom Emenhiser
Client Services

PLEASE ROUTE: 17618
ER 2/13 LAB RECEPTIONIST
MK DIVISION MGR.
R 2/13 DATA ENTRY
W 2/13 DATA PACKAGE

CH2M Hill Organics Laboratory

Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

Initial Calibration (*)

Continuing Calibration (Daily Standard) (*)

Quantitation Reports for Organic-Free Water Blanks

Matrix Spike/Matrix Spike Duplicate (*)

Surrogate Control Charts (*)

Chromatograms (*)

Copy of Chain-of-Custody

(*) Information provided where applicable or when requested.

000010

SAMPLE INFORMATION

Client: CH2M HILL/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Description: WATER SAMPLE
BANG
601/602 ANALYSIS
LMG 17618

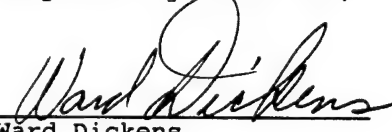
Sample Number: 89398-99
Quantity: 2
Date Received: 01/23/91
Date Completed: 01/29/91
Date Reported: 02/11/91
Project Number: MGM 27232.VB.SD
Number of Pages: 18

The information shown in this report is test data only
and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112, E82124

Respectfully submitted,


Ward Dickens
Laboratory Manager

Definitions of Reporting Qualifiers

Result Qualifiers

- (U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Reporting Limit for that compound. The Reporting Limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- (JX) Presence indicated but less than stated Reporting Limit. In a diluted sample, a clearly defined peak was present at less than the stated Reporting Limit.

Analysis (Run) Qualifiers

- (M) Matrix interference precludes achieving lower Reporting Limit. The Reporting Limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.
- (N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples, even if no target compounds are detected.

Reporting Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum Reporting Limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples; used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL	Laboratory: GAINESVILLE	Date Sampled: 01/19/91
Project: BANG	Lab Sample ID: 89398	Date Received: 01/23/91
Proj No: MGM 27232.VB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/26/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: HS	Column: J & W DB-1	Date Reported: 01/31/91

Client Sample ID/Description: W1 (N) (LMG 17618-04)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	14	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	4.9	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	29	ug/L

74-97-5	Bromochloromethane-SS	106	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	99	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by:

Charlie Garman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/19/91
Project: BANG	Lab Sample Id: 89399	Date Received: 01/23/91
Proj No: MGM 27232.UB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/27/91
Matrix: WATER	Instrument ID: GC#2	Analyst: MS
Sampler: HS	Column: J & W DB-1	Date Reported: 01/30/91

Client Sample ID/Description: TRAVEL BLANK (RUN #1 - DCM @ 1.9 PPB) (LMG 17618-05)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	1.9	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	103	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	90	%rec

U = Compound analyzed for but not detected
 SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/19/91
Project: BANG	Lab Sample Id: 89399R	Date Received: 01/23/91
Proj No: MGM 27232.UB.SD	% Moisture: 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/29/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: HS	Column: J & W DB-1	Date Reported: 02/01/91

Client Sample ID/Description: TRAVEL BLANK (RUN #2 - DCM @ 1.9 PPB) (LMG 17618-05)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	1.9	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	100	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	93	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL	Laboratory: GAINESVILLE	Date Sampled: 01/26/91
Project: BANG	Lab Sample Id: 2VB0126A	Date Received: N/A
Proj No: MGM 27232.VB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/26/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: N/A	Column: J & W DB-1	Date Reported: 01/31/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	95	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	89	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000047

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
 Project: BANG
 Proj No: MGM 27232.UB.SD
 Method: 601/602
 Matrix: WATER
 Sampler: N/A

Laboratory: GAINESVILLE
 Lab Sample Id: 2V80127A
 % Moisture: 0.0
 Dilution Factor: 1.0
 Instrument ID: GC#2
 Column: J & W DB-1

Date Sampled: 01/27/91
 Date Received: N/A
 Date Extracted: N/A
 Date Analyzed: 01/27/91
 Analyst: MS
 Date Reported: 01/30/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	92	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	101	%rec

U = Compound analyzed for but not detected
 SS = Surrogate Standard reported as percent recovery

Reviewed by:

Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
Project: BANG
Proj No: MGM 27232.UB.SD
Method: 601/602
Matrix: WATER
Sampler: N/A

Laboratory: GAINESVILLE
Lab Sample Id: 2VB0128A
% Moisture: 0.0
Dilution Factor: 1.0
Instrument ID: GC#2
Column: J & W DB-1

Date Sampled: 01/28/91
Date Received: N/A
Date Extracted: N/A
Date Analyzed: 01/28/91
Analyst: CJ
Date Reported: 02/01/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

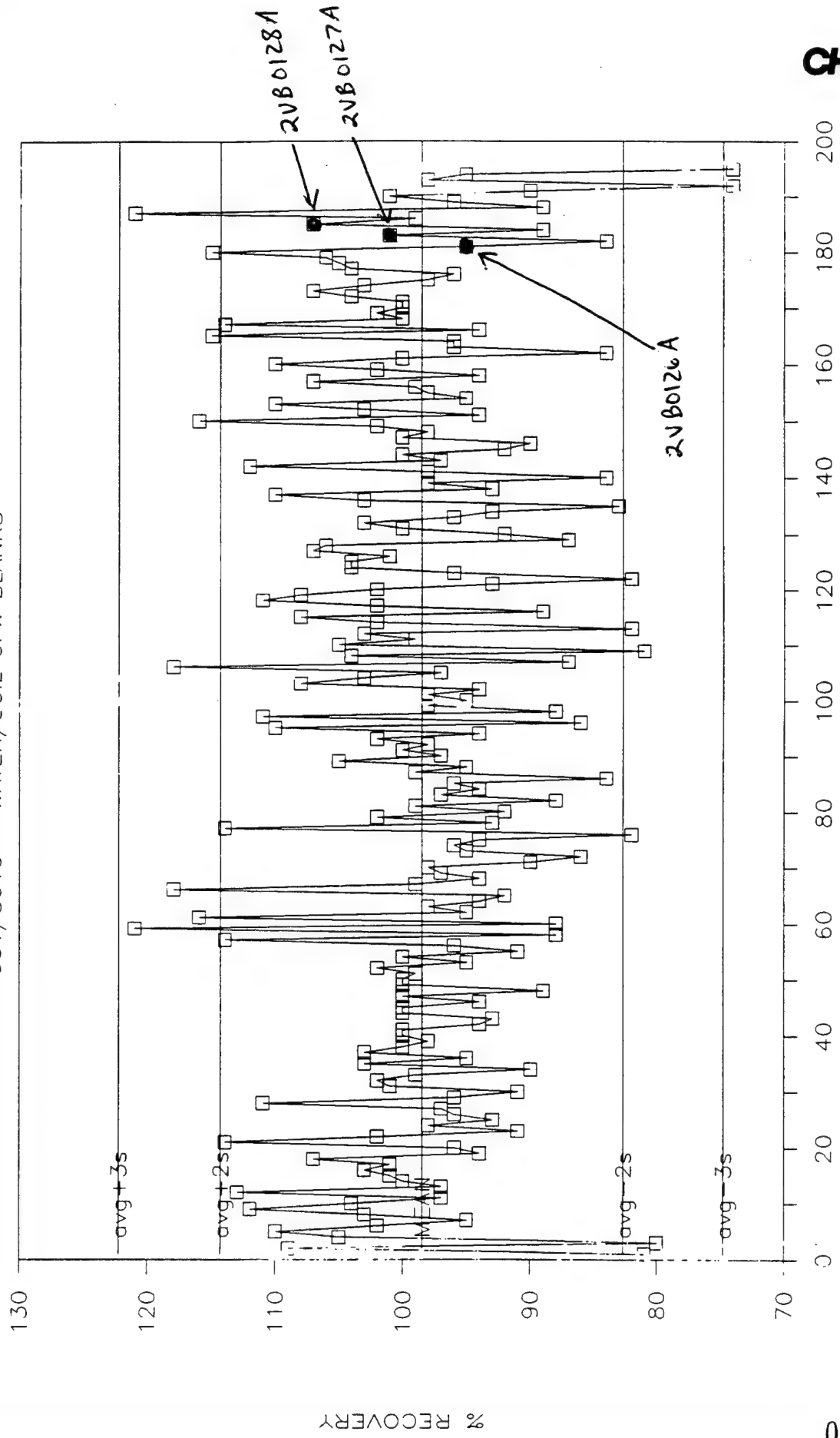
74-97-5	Bromochloromethane-SS	107	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	93	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

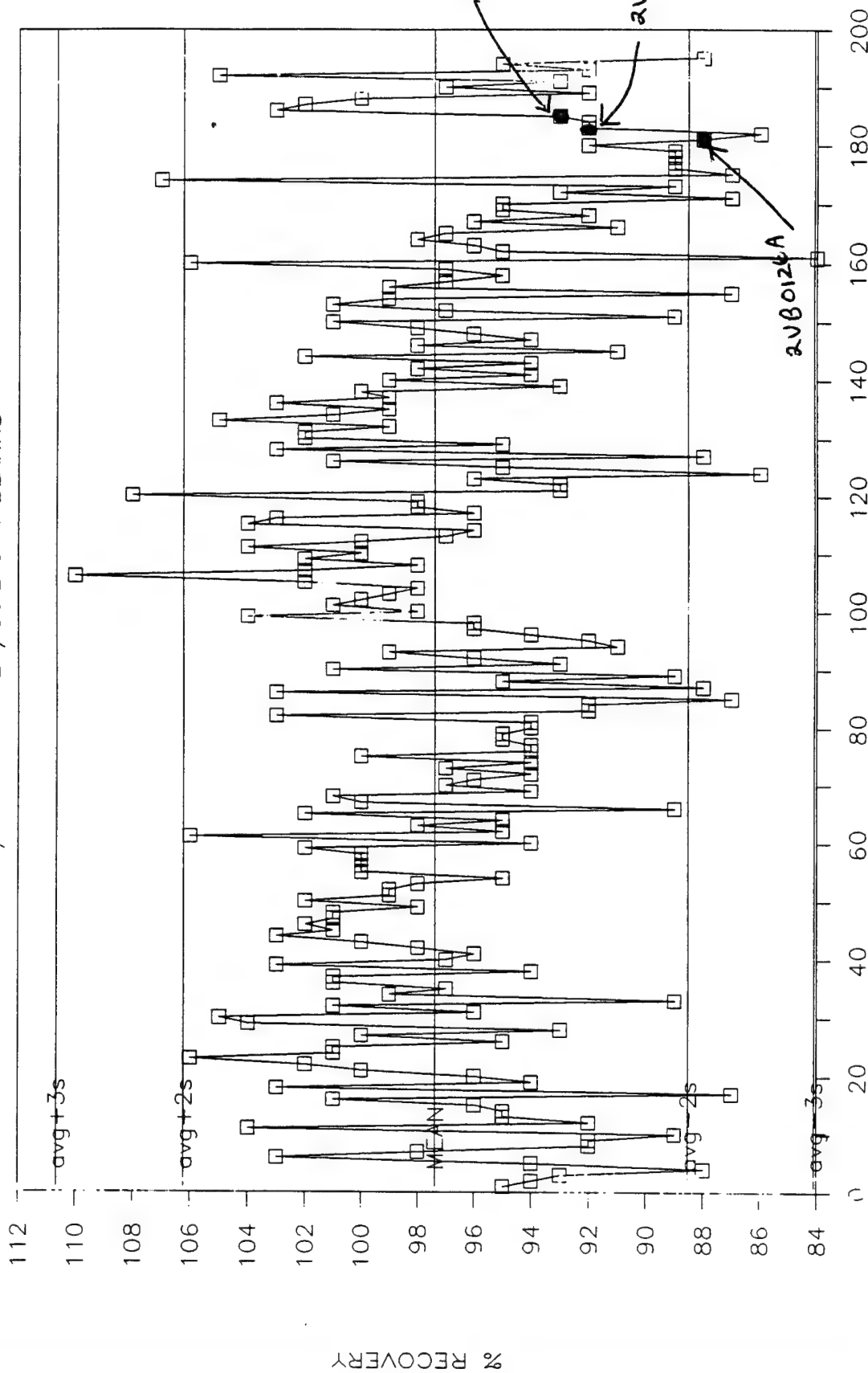
SURROGATE RECOVERY

601/8010 - WATER/SOIL OFW BLANKS



SURROGATE RECOVERY

602/8020 - WATER/SOIL OFW BLANKS



CHM HILL

1500051

WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
1	2VB0828AH	8/28/90	81.0	95.0	YES	NO	YES	NO
2	1VB0829A	8/29/90	109.0	94.0	YES	NO	YES	NO
3	2VB0829AH	8/29/90	80.0	93.0	YES	NO	YES	NO
4	1VB0830A	8/30/90	105.0	88.0	YES	NO	YES	NO
5	2VB0830AH	8/30/90	110.0	94.0	YES	NO	YES	NO
6	1VB0831A	8/31/90	102.0	103.0	YES	NO	YES	NO
7	2VB0831AH	8/31/90	95.0	98.0	YES	NO	YES	NO
8	1VB0901B	9/1/90	103.0	92.0	YES	NO	YES	NO
9	2VB0901AH	9/1/90	112.0	92.0	YES	NO	YES	NO
10	1VB0902B	9/2/90	104.0	89.0	YES	NO	YES	NO
11	1VB0903A	9/3/90	97.0	104.0	YES	NO	YES	NO
12	1VB0904A	9/4/90	113.0	92.0	YES	NO	YES	NO
13	2VB0904AH	9/4/90	97.0	95.0	YES	NO	YES	NO
14	1VB0905A	9/5/90	100.0	95.0	YES	NO	YES	NO
15	2VB0905AH	9/5/90	101.0	96.0	YES	NO	YES	NO
16	2VB0906BHM	9/6/90	103.0	101.0	YES	NO	YES	NO
17	1VB0907A	9/7/90	101.0	87.0	YES	NO	YES	NO
18	2VB0907AH	9/7/90	107.0	103.0	YES	NO	YES	NO
19	1VB0908A	9/8/90	94.0	94.0	YES	NO	YES	NO
20	2VB0908AH	9/8/90	96.0	96.0	YES	NO	YES	NO
21	1VB0909A	9/9/90	114.0	100.0	YES	NO	YES	NO
22	1VB0910A	9/10/90	102.0	102.0	YES	NO	YES	NO
23	2VB0910AH	9/10/90	91.0	106.0	YES	NO	YES	NO
24	1VB0911A	9/11/90	98.0	101.0	YES	NO	YES	NO
25	2VB0911AH	9/11/90	93.0	101.0	YES	NO	YES	NO
26	1VB0912B	9/12/90	96.0	95.0	YES	NO	YES	NO
27	2VB0912A	9/12/90	97.0	100.0	YES	NO	YES	NO
28	1VB0913B	9/13/90	111.0	93.0	YES	NO	YES	NO
29	1VB0914B	9/14/90	96.0	104.0	YES	NO	YES	NO
30	2VB0914A	9/14/90	91.0	105.0	YES	NO	YES	NO
31	1VB0915A	9/15/90	101.0	96.0	YES	NO	YES	NO
32	2VB0915B	9/15/90	102.0	101.0	YES	NO	YES	NO
33	1VB0916A	9/16/90	99.0	89.0	YES	NO	YES	NO
34	2VB0916A	9/16/90	90.0	99.0	YES	NO	YES	NO
35	1VB0917A	9/17/90	103.0	97.0	YES	NO	YES	NO
36	2VB0917A	9/17/90	95.0	101.0	YES	NO	YES	NO
37	1VB0918A	9/18/90	103.0	101.0	YES	NO	YES	NO
38	2VB0918A	9/18/90	100.0	94.0	YES	NO	YES	NO
39	2VB0919A	9/19/90	98.0	103.0	YES	NO	YES	NO
40	2VB0920A	9/20/90	100.0	97.0	YES	NO	YES	NO
41	2VB0921A	9/21/90	100.0	96.0	YES	NO	YES	NO
42	2VB0922A	9/22/90	94.0	98.0	YES	NO	YES	NO
43	2VB0923A	9/23/90	93.0	100.0	YES	NO	YES	NO
44	1VB0923AM	9/23/90	100.0	103.0	YES	NO	YES	NO
45	1VB0924AH	9/24/90	100.0	101.0	YES	NO	YES	NO
46	2VB0924A	9/24/90	94.0	102.0	YES	NO	YES	NO
47	1VB0925AH	9/25/90	100.0	101.0	YES	NO	YES	NO
48	2VB0925A	9/25/90	89.0	101.0	YES	NO	YES	NO
49	1VB0926A	9/26/90	100.0	98.0	YES	NO	YES	NO
50	2VB0926A	9/26/90	100.0	102.0	YES	NO	YES	NO
51	2VB0927A	9/27/90	99.0	99.0	YES	NO	YES	NO
52	2VB0928A	9/28/90	102.0	99.0	YES	NO	YES	NO
53	2VB0929A	9/29/90	95.0	98.0	YES	NO	YES	NO
54	2VB0930A	9/30/90	100.0	95.0	YES	NO	YES	NO

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CH2M HILL

55	2VB1001A	10/01/90	91.0	100.0	YES	NO	YES	NO
56	2VB1002A	10/02/90	96.0	100.0	YES	NO	YES	NO
57	1VB1003B	10/03/90	114.0	100.0	YES	NO	YES	NO
58	2VB1003A	10/03/90	88.0	100.0	YES	NO	YES	NO
59	1VB1004A	10/04/90	121.0	102.0	YES	NO	YES	NO
60	2VB1004A	10/04/90	88.0	94.0	YES	NO	YES	NO
61	1VB1005A	10/05/90	116.0	106.0	YES	NO	YES	NO
62	2VB1005A	10/05/90	95.0	95.0	YES	NO	YES	NO
63	2VB1006A	10/06/90	98.0	98.0	YES	NO	YES	NO
64	2VB1007A	10/07/90	94.0	95.0	YES	NO	YES	NO
65	1VB1008A	10/08/90	92.0	102.0	YES	NO	YES	NO
66	1VB1009A	10/09/90	118.0	89.0	YES	NO	YES	NO
67	2VB1009A	10/09/90	99.0	100.0	YES	NO	YES	NO
68	2VB1010A	10/10/90	94.0	101.0	YES	NO	YES	NO
69	2VB1011A	10/11/90	97.0	94.0	YES	NO	YES	NO
70	2VB1013A	10/13/90	98.0	97.0	YES	NO	YES	NO
71	2VB1014B	10/14/90	90.0	96.0	YES	NO	YES	NO

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WATER 0

SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
72	2VB1015A	10/15/90	86.0	94.0	YES	NO	YES	NO
73	2VB1016A	10/16/90	95.0	97.0	YES	NO	YES	NO
74	2VB1019A	10/19/90	96.0	94.0	YES	NO	YES	NO
75	2VB1020A	10/20/90	94.0	100.0	YES	NO	YES	NO
76	2VB1021A	10/21/90	82.0	94.0	YES	NO	YES	NO
77	1VB1022A	10/22/90	114.0	94.0	YES	NO	YES	NO
78	2VB1022B	10/22/90	93.0	95.0	YES	NO	YES	NO
79	1VB1023A	10/23/90	102.0	95.0	YES	NO	YES	NO
80	2VB1023A	10/23/90	92.0	94.0	YES	NO	YES	NO
81	1VB1024A	10/24/90	99.0	94.0	YES	NO	YES	NO
82	2VB1024A	10/24/90	88.0	103.0	YES	NO	YES	NO
83	1VB1025A	10/25/90	97.0	92.0	YES	NO	YES	NO
84	2VB1025A	10/25/90	94.0	92.0	YES	NO	YES	NO
85	1VB1026A	10/26/90	96.0	87.0	YES	NO	YES	NO
86	2VB1026A	10/26/90	84.0	103.0	YES	NO	YES	NO
87	1VB1027A	10/27/90	99.0	88.0	YES	NO	YES	NO
88	2VB1027A	10/27/90	95.0	95.0	YES	NO	YES	NO
89	1VB1030A	10/30/90	105.0	89.0	YES	NO	YES	NO
90	2VB1030A	10/30/90	97.0	101.0	YES	NO	YES	NO
91	1VB1031A	10/31/90	100.0	93.0	YES	NO	YES	NO
92	2VB1031A	10/31/90	98.0	96.0	YES	NO	YES	NO
93	1VB1101A	11/01/90	102.0	99.0	YES	NO	YES	NO
94	2VB1101A	11/01/90	94.0	91.0	YES	NO	YES	NO
95	1VB1102A	11/02/90	110.0	92.0	YES	NO	YES	NO
96	2VB1102A	11/02/90	86.0	94.0	YES	NO	YES	NO
97	1VB1103B	11/03/90	111.0	96.0	YES	NO	YES	NO
98	2VB1103A	11/03/90	88.0	96.0	YES	NO	YES	NO
99	2VB1104A	11/04/90	98.0	104.0	YES	NO	YES	NO
100	2VB1105A	11/05/90	95.0	98.0	YES	NO	YES	NO
101	1VB1106A	11/06/90	98.0	101.0	YES	NO	YES	NO
102	2VB1106A	11/06/90	94.0	100.0	YES	NO	YES	NO
103	1VB1109A	11/09/90	108.0	99.0	YES	NO	YES	NO

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CHM HILL

104	2VB1109A	11/09/90	103.0	98.0	YES	NO	YES	NO
105	2VB1110A	11/10/90	97.0	102.0	YES	NO	YES	NO
106	1VB1111A	11/11/90	118.0	110.0	YES	NO	YES	NO
107	1VB1112A	11/12/90	87.0	102.0	YES	NO	YES	NO
108	2VB1112B	11/12/90	104.0	98.0	YES	NO	YES	NO
109	1VB1113A	11/13/90	81.0	102.0	YES	NO	YES	NO
110	2VB1113A	11/13/90	105.0	100.0	YES	NO	YES	NO
111	1VB1114A	11/14/90	99.0	104.0	YES	NO	YES	NO
112	2VB1114A	11/14/90	103.0	100.0	YES	NO	YES	NO
113	1VB1115A	11/15/90	82.0	97.0	YES	NO	YES	NO
114	2VB1115A	11/15/90	102.0	96.0	YES	NO	YES	NO
115	1VB1116A	11/16/90	108.0	104.0	YES	NO	YES	NO
116	2VB1116A	11/16/90	89.0	103.0	YES	NO	YES	NO
117	1VB1117A	11/17/90	102.0	96.0	YES	NO	YES	NO
118	1VB1118A	11/18/90	111.0	98.0	YES	NO	YES	NO
119	1VB1119B	11/19/90	108.0	98.0	YES	NO	YES	NO
120	2VB1120A	11/20/90	102.0	108.0	YES	NO	YES	NO
121	2VB1122A	11/22/90	93.0	93.0	YES	NO	YES	NO
122	2VB1123A	11/23/90	82.0	93.0	YES	NO	YES	NO
123	2VB1125A	11/25/90	96.0	96.0	YES	NO	YES	NO
124	2VB1126A	11/26/90	104.0	86.0	YES	NO	YES	NO
125	2VB1127A	11/27/90	104.0	95.0	YES	NO	YES	NO
126	2VB1129A	11/29/90	101.0	101.0	YES	NO	YES	NO
127	2VB1201A	12/01/90	107.0	88.0	YES	NO	YES	NO
128	2VB1206A	12/06/90	106.0	103.0	YES	NO	YES	NO
129	2VB1211B	12/11/90	87.0	95.0	YES	NO	YES	NO
130	2VB1212A	12/12/90	92.0	102.0	YES	NO	YES	NO
131	2VB1214A	12/14/90	100.0	102.0	YES	NO	YES	NO
132	2VB1215A	12/15/90	103.0	99.0	YES	NO	YES	NO
133	1VB1217A	12/17/90	96.0	105.0	YES	NO	YES	NO
134	2VB1217A	12/17/90	93.0	101.0	YES	NO	YES	NO
135	1VB1218A	12/18/90	83.0	99.0	YES	NO	YES	NO
136	2VB1218A	12/18/90	103.0	103.0	YES	NO	YES	NO
137	1VB1219A	12/19/90	110.0	99.0	YES	NO	YES	NO
138	2VB1219A	12/19/90	93.0	100.0	YES	NO	YES	NO
139	1VB1220A	12/20/90	98.0	93.0	YES	NO	YES	NO
140	2VB1220A	12/20/90	84.0	99.0	YES	NO	YES	NO
141	1VB1221A	12/21/90	98.0	94.0	YES	NO	YES	NO
142	2VB1221A	12/21/90	112.0	98.0	YES	NO	YES	NO

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WATER		0						
SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
143	1VB1222A	12/22/90	97.0	94.0	YES	NO	YES	NO
144	2VB1222A	12/22/90	100.0	102.0	YES	NO	YES	NO
145	1VB1223A	12/23/90	92.0	91.0	YES	NO	YES	NO
146	2VB1223A	12/23/90	90.0	98.0	YES	NO	YES	NO
147	2VB1226A	12/26/90	100.0	94.0	YES	NO	YES	NO
148	2VB1227A	12/27/90	98.0	96.0	YES	NO	YES	NO
149	2VB1228A	12/28/90	102.0	98.0	YES	NO	YES	NO
150	2VB1229A	12/29/90	116.0	101.0	YES	NO	YES	NO
151	1VB1230A	12/30/90	94.0	89.0	YES	NO	YES	NO
152	2VB1230A	12/30/90	103.0	97.0	YES	NO	YES	NO

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CHM HILL

153	2VB1231A	12/31/90	110.0	101.0	YES	NO	YES	NO
154	2VB0102A	01/02/91	95.0	99.0	YES	NO	YES	NO
155	2VB0103A	01/03/91	98.0	87.0	YES	NO	YES	NO
156	2VB0104B	01/04/91	99.0	99.0	YES	NO	YES	NO
157	2VB0105A	01/05/91	107.0	97.0	YES	NO	YES	NO
158	2VB0106A	01/06/91	94.0	95.0	YES	NO	YES	NO
159	2VB0107A	01/07/91	102.0	97.0	YES	NO	YES	NO
160	2VB0109B	01/09/91	110.0	106.0	YES	NO	YES	NO
161	2VB0111A	01/11/91	100.0	84.0	YES	NO	NO	NO
162	2VB1112A	01/12/91	84.0	95.0	YES	NO	YES	NO
163	2VB0113A	01/13/91	96.0	96.0	YES	NO	YES	NO
164	2VB0114A	01/14/90	96.0	98.0	YES	NO	YES	NO
165	2VB0115A	01/15/91	115.0	97.0	YES	NO	YES	NO
166	2VB0116A	01/16/91	94.0	91.0	YES	NO	YES	NO
167	2VB0117A	01/17/91	114.0	96.0	YES	NO	YES	NO
168	2VB0118A	01/18/91	100.0	92.0	YES	NO	YES	NO
169	2VB0119A	01/19/91	102.0	95.0	YES	NO	YES	NO
170	2VB0120A	01/20/91	100.0	95.0	YES	NO	YES	NO
171	2VB0121A	01/21/91	100.0	87.0	YES	NO	YES	NO
172	2VB0122A	01/22/91	104.0	93.0	YES	NO	YES	NO
173	1VB0123A	01/23/91	107.0	89.0	YES	NO	YES	NO
174	2VB0123AM	01/23/91	103.0	107.0	YES	NO	YES	NO
175	1VB0124A	01/24/91	98.0	87.0	YES	NO	YES	NO
176	2VB0124A	01/24/91	96.0	89.0	YES	NO	YES	NO
177	1VB0125A	01/25/91	104.0	89.0	YES	NO	YES	NO
178	2VB0125A	01/25/91	105.0	89.0	YES	NO	YES	NO
179	2VB0125B	01/25/91	106.0	89.0	YES	NO	YES	NO
180	1VB0126A	01/26/91	115.0	92.0	YES	NO	YES	NO
181	2VB0126A	01/26/91	95.0	88.0	YES	NO	YES	NO
182	1VB0127A	01/27/91	84.0	86.0	YES	NO	YES	NO
183	2VB0127A	01/27/91	101.0	92.0	YES	NO	YES	NO
184	1VB0128A	01/28/91	89.0	92.0	YES	NO	YES	NO
185	2VB0128A	01/28/91	107.0	98.0	YES	NO	YES	NO
186	1VB0130A	01/30/91	99.0	103.0	YES	NO	YES	NO
187	1VB0131A	01/31/91	121.0	102.0	YES	NO	YES	NO
188	2VB0131AM	01/31/91	89.0	100.0	YES	NO	YES	NO
189	2VB0201A	02/01/91	96.0	92.0	YES	NO	YES	NO
190	2VB0203A	02/03/91	101.0	97.0	NO	NO	YES	NO
191	2VB0204A	02/04/91	90.0	93.0	YES	NO	YES	NO
192	1VB0205A	02/05/91	74.0	105.0	YES	NO	YES	NO
193	2VB0205A	02/05/91	98.0	92.0	NO	NO	YES	NO
194	2VB0207A	02/07/91	95.0	95.0				
195	1VB0207B	02/07/91	74.0	88.0				
196					NO	NO	YES	NO
197								
198								
199								
200								

=====

ACCEPTANCE R1VB0828B	8/28/90	102.0	90.0	YES	NO	3	NO
----------------------	---------	-------	------	-----	----	---	----

=====

WATER:

601				602			
MEAN = 98.50				MEAN = 97.37			
STD. DEV. = 7.52				STD. DEV. = 4.43			
MEAN	MEAN			MEAN	MEAN		
-	+			-	+		
2 s	82.7	114.3		2 s	88.5	106.2	
3 s	74.7	122.3		3 s	84.1	110.7	

000055

CHAIN OF CUSTODY RECORD

REV 6/89 FORM 340

February 13, 1991

MGM27232.UB.SD

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard,
LMG Laboratory No. 17593

Dear Mr. Martin:

On January 16, 1991, the CH2M HILL Montgomery Laboratory received twelve samples with a request for analysis of selected organic and inorganic parameters. Per your request samples 17593001, 17593004, 17593006, 17593007, 17593010, and 17593011 were cancelled.

The analytical results and associated quality control data are enclosed. The Purgeable Halocarbons/Aromatics analysis was performed at our Gainesville, Florida laboratory. A copy of their report is enclosed.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom/LMG

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.
- C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.
- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.
- E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.
- D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.
- A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.
- X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.
- JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

- DL** -- Dilution Run
- R** -- Rerun (may be followed by a digit to indicate multiple reruns)
- RD** -- Diluted Rerun
- RX** -- Re-extraction Analysis
- MS** -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)
- MSD** -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)
- QC_BLANK** -- Method Blank (may be followed by an **S** for soils run at a low level, **W** for waters, or **SM** for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17593

CH2M HILL Sample No.	Sample Description			
17593001	SAMPLE D-1	01/16/91	1000	COMP
17593002	SAMPLE D-12	01/16/91	1000	COMP
17593003	SAMPLE D-12-DUP	01/16/91	1000	COMP
17593004	SAMPLE D-23	01/16/91	1000	COMP
17593005	SAMPLE D-34	01/16/91	1000	COMP
17593006	SAMPLE D-34-DUP	01/16/91	1000	COMP
17593007	SAMPLE D-54	01/16/91	1000	COMP
17593008	SAMPLE TRIP BLANK 1			
17593009	SAMPLE D-57	01/16/91	1000	COMP
17593010	SAMPLE D-57-DUP	01/16/91	1000	COMP
17593011	SAMPLE D-59	01/16/91	1000	COMP
17593012	SAMPLE TRIP BLANK 2	01/16/91	1000	COMP



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-12 1000 COMP

Laboratory Sample Number: 17593002

Date Collected: 01/16/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	10	U	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	10	U	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	10	U	ug/L	01/26/91
Benzene	EPA601/602(MOD)	10	49	ug/L	01/26/91
Toluene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	10	180	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	91	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	88	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = COMPOUND ANALYZED FOR BUT NOT
DETECTED.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000001



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: D-12 1000 COMP

Laboratory Sample Number: 17593002 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = COMPOUND ANALYZED FOR BUT NOT
DETECTED.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000002

REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-12-DUP 1000 COMP
Laboratory Sample Number: 17593003 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	10	U	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	10	U	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	10	U	ug/L	01/26/91
Benzene	EPA601/602(MOD)	10	42	ug/L	01/26/91
Toluene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	10	140	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	106	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	89	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000003

205.271.1444



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-12-DUP 1000 COMP

Laboratory Sample Number: 17593003 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000004

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-34 1000 COMP

Laboratory Sample Number: 17593005 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	10	U	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	10	U	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	10	U	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	10	U	ug/L	01/26/91
Benzene	EPA601/602(MOD)	10	33	ug/L	01/26/91
Toluene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	10	69	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	10	U	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	93	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	92	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INBPRPT(v910124)
000005

Client: CH2M HILL/MGM
 2567 FAIRLANE DRIVE
 P.O. BOX 230548
 MONTGOMERY, ALABAMA 36123-0548
 Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
 BIRMINGHAM AIR NATIONAL GUARD
 Laboratory Number: 17593
 Date Received: 01/16/91

Sample Description: D-34 1000 COMP

Laboratory Sample Number: 17593005

Date Collected: 01/16/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: JMS

INRPRPT(v910124)

000006



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: TRIP BLANK 1

Laboratory Sample Number: 17593008 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromochloromethane - SS	EPA601/602(MOD)	----	99	%rec	01/27/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	90	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000007



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: TRIP BLANK 1

Laboratory Sample Number: 17593008 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-57 1000 COMP

Laboratory Sample Number: 17593009

Date Collected: 01/16/91

Matrix: SLUDGE

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Bromomethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Vinyl chloride	SW8010/8020	1300	U	mg/Kg	01/24/91
Chloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
1,1-Dichloroethene	SW8010/8020	1300	U	mg/Kg	01/24/91
Dichloromethane	SW8010/8020	1300	U	mg/Kg	01/24/91
trans-1,2-Dichloroethene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,1-Dichloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Chloroform	SW8010/8020	1300	U	mg/Kg	01/24/91
1,1,1-Trichloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Carbon tetrachloride	SW8010/8020	1300	U	mg/Kg	01/24/91
1,2-Dichloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Trichloroethene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,2-Dichloropropane	SW8010/8020	1300	U	mg/Kg	01/24/91
Bromodichloromethane	SW8010/8020	1300	U	mg/Kg	01/24/91
cis-1,3-Dichloropropene	SW8010/8020	1300	U	mg/Kg	01/24/91
trans-1,3-Dichloropropene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,1,2-Trichloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Tetrachloroethene	SW8010/8020	1300	U	mg/Kg	01/24/91
Dibromochloromethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Bromoform	SW8010/8020	1300	U	mg/Kg	01/24/91
1,1,2,2-Tetrachloroethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Chlorobenzene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,3-Dichlorobenzene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,4-Dichlorobenzene	SW8010/8020	1300	U	mg/Kg	01/24/91
1,2-Dichlorobenzene	SW8010/8020	1300	U	mg/Kg	01/24/91
tert-Butyl methyl ether	SW8010/8020	1300	U	mg/Kg	01/24/91
Benzene	SW8010/8020	1300	U	mg/Kg	01/24/91
Toluene	SW8010/8020	1300	U	mg/Kg	01/24/91
Ethylbenzene	SW8010/8020	1300	U	mg/Kg	01/24/91
Total Xylenes	SW8010/8020	1300	1900	mg/Kg	01/24/91
Trichlorofluoromethane	SW8010/8020	1300	U	mg/Kg	01/24/91
Bromochloromethane - SS	SW8010/8020	----	111	%rec	01/24/91
a,a,a-Trifluorotoluene - SS	SW8010/8020	----	96	%rec	01/24/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = COMPOUND ANALYZED FOR BUT NOT
DETECTED.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000009



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: D-57 1000 COMP

Laboratory Sample Number: 17593009

Date Collected: 01/16/91

Matrix: SLUDGE

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	SW8010/8020	----	NR	%rec	01/24/91
Fluorobenzene - SS	SW8010/8020	----	NR	%rec	01/24/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = COMPOUND ANALYZED FOR BUT NOT
DETECTED.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000010

REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: TRIP BLANK 2

Laboratory Sample Number: 17593012 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromochloromethane - SS	EPA601/602(MOD)	----	115	%rec	01/25/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	93	%rec	01/25/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000011



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: TRIP BLANK 2

Laboratory Sample Number: 17593012 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/25/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/25/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by:

INRPRPT(v910124)

000012

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZS1 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	SW8010/8020	1.0	U	ug/L	01/23/91
Bromomethane	SW8010/8020	1.0	U	ug/L	01/23/91
Vinyl chloride	SW8010/8020	1.0	U	ug/L	01/23/91
Chloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
1,1-Dichloroethene	SW8010/8020	1.0	U	ug/L	01/23/91
Dichloromethane	SW8010/8020	1.0	U	ug/L	01/23/91
trans-1,2-Dichloroethene	SW8010/8020	1.0	U	ug/L	01/23/91
1,1-Dichloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
Chloroform	SW8010/8020	1.0	U	ug/L	01/23/91
1,1,1-Trichloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
Carbon tetrachloride	SW8010/8020	1.0	U	ug/L	01/23/91
1,2-Dichloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
Trichloroethene	SW8010/8020	1.0	U	ug/L	01/23/91
1,2-Dichloropropane	SW8010/8020	1.0	U	ug/L	01/23/91
Bromodichloromethane	SW8010/8020	1.0	U	ug/L	01/23/91
cis-1,3-Dichloropropene	SW8010/8020	1.0	U	ug/L	01/23/91
trans-1,3-Dichloropropene	SW8010/8020	1.0	U	ug/L	01/23/91
1,1,2-Trichloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
Tetrachloroethene	SW8010/8020	1.0	U	ug/L	01/23/91
Dibromochloromethane	SW8010/8020	1.0	U	ug/L	01/23/91
Bromoform	SW8010/8020	1.0	U	ug/L	01/23/91
1,1,2,2-Tetrachloroethane	SW8010/8020	1.0	U	ug/L	01/23/91
Chlorobenzene	SW8010/8020	1.0	U	ug/L	01/23/91
1,3-Dichlorobenzene	SW8010/8020	1.0	U	ug/L	01/23/91
1,4-Dichlorobenzene	SW8010/8020	1.0	U	ug/L	01/23/91
1,2-Dichlorobenzene	SW8010/8020	1.0	U	ug/L	01/23/91
tert-Butyl methyl ether	SW8010/8020	1.0	U	ug/L	01/23/91
Benzene	SW8010/8020	1.0	U	ug/L	01/23/91
Toluene	SW8010/8020	1.0	U	ug/L	01/23/91
Ethylbenzene	SW8010/8020	1.0	U	ug/L	01/23/91
Total Xylenes	SW8010/8020	1.0	U	ug/L	01/23/91
Trichlorofluoromethane	SW8010/8020	1.0	U	ug/L	01/23/91
Bromochloromethane - SS	SW8010/8020	----	103	%rec	01/23/91
a,a,a-Trifluorotoluene - SS	SW8010/8020	----	107	%rec	01/23/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000013



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZS1

Date Collected: 01/16/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	SW8010/8020	----	NR	N/A	01/23/91
Fluorobenzene - SS	SW8010/8020	----	NR	N/A	01/23/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000014



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW1 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/25/91
Bromochloromethane - SS	EPA601/602(MOD)	----	106	%rec	01/25/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	89	%rec	01/25/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000015



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW1

Date Collected: 01/16/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/25/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/25/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000016

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW2 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/26/91
Bromochloromethane - SS	EPA601/602(MOD)	----	95	%rec	01/26/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	88	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)

000017
205.271.1444



REPORT OF ANALYTICAL RESULTS

Date: 02/12/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW2 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/26/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not
detected.

COMMENT: NR = Not reported.

Reviewed by: JWS

INRPRPT(v910124)

000018

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW3 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/27/91
Bromochloromethane - SS	EPA601/602(MOD)	----	92	%rec	01/27/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	101	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: 

INRPRPT(v910124)
000019

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW3

Date Collected: 01/16/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/27/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: U = Compound analyzed for but not detected.

COMMENT: NR = Not reported.

Reviewed by: JMB

INRPRPT(v910124)
000020

CASE NARRATIVE FOR PNA
GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES

CLIENT: BANG

CASE NO. : N/A

CONTRACT NO.: N/A

LAB NO. : 17593

SDG NO.: N/A

I. RECEIPT

A. DATE : January 16, 1991

B. SAMPLE INFORMATION

<u>LAB ID</u>	<u>CLIENT ID</u>	<u>SAMPLE MATRIX</u>	<u>DATE SAMPLED</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
17593002	D-12	WATER	01/16/91	01/18/91	01/22/91
17593003	D-12-DUP	WATER	01/16/91	01/18/91	01/22/91
17593005	D-34	WATER	01/16/91	01/18/91	01/22/91
17593009	D-57	SLUDGE	01/16/91	01/18/91	01/22/91
W01181B1	QC BLANK	WATER	NA	01/18/91	01/22/91
S01181B1	QC BLANK	SLUDGE	NA	01/18/91	01/22/91

C. Documentation

Exceptions : No exceptions were encountered.

II. EXTRACTION

A. Holding Times: All holding times were met.

B. Extraction

Exceptions : No exceptions were encountered.

000021

III. ANALYSIS

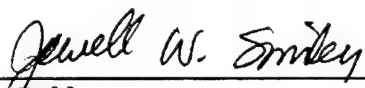
- A. Holding Times: All holding times were met.
- B. Analytical
Exceptions : Sample 17593009 (D-57) was received at our lab having two liquid phases. The heavy liquid phase appeared to be aqueous, and the floating liquid was organic. According to instructions, we analyzed the upper phase which contained more suspended solids. PNA results for this sample are reported on a "wet" weight basis since most of the sample volatilized during percent moisture determination. Low PNA detection limits were not achieved for many samples due to interferences not removed by silica gel column cleanup.

No additional exceptions were encountered.

IV. QUALITY CONTROL

- A. Method Blank : All associated method blanks met acceptable QC criteria.
- B. Surrogate
Recoveries : The surrogate recovery for sample 17593009 (D-57) was not determined due to the large dilution required for analysis. All other samples met acceptable QC limits.
- C. Matrix Spike
Results : Matrix spike results have not been reported with this contract.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Herb Kelly
Manager, Organic Division

2/13/91
Date

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 01/18/91
 Lab Sample ID: 17593002 Sample Matrix: WATER Date Analyzed: 01/22/91
 Client Sample ID: D-12 Percent Moisture: Dilution Factor: 10.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number		ug/L
91-20-3	Naphthalene	79			
91-57-6	2-Methylnaphthalene . . .	240			
90-12-0	1-Methylnaphthalene . . .	130			
208-96-8	Acenaphthylene	20 U			
83-32-9	Acenaphthene	20 U			
86-73-7	Fluorene.	20 U			
85-01-8	Phenanthrene.	33			
120-12-7	Anthracene.	20 U			
206-44-0	Fluoranthene.	20 U			
129-00-0	Pyrene.	20 U			
56-55-3	Benzo(a)anthracene. . . .	20 U			
218-01-9	Chrysene.	20 U			
205-99-2	Benzo(b)fluoranthene . .	20 U			
207-08-9	Benzo(k)fluoranthene . .	20 U			
50-32-8	Benzo(a)pyrene.	20 U			
193-39-5	Indeno(1,2,3-cd)pyrene. .	20 U			
53-70-3	Dibenzo(a,h)anthracene. .	20 U			
191-24-2	Benzo(g,h,i)perylene. . .	20 U			
Terphenyl-d14 - SS		89			

U - Analyzed for but not detected.
 B - Detected in QC blank.
 JX - Detected, concentration estimated.
 SS - Surrogate Standard reported as percent recovery.

Comments: The extract was diluted due to chemical interferences which were not removed during cleanup efforts.

Form I



000023



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17593003
Client Sample ID: D-12-DUP

Concentration: LOW
Sample Matrix: WATER
Percent Moisture: _____

Date Extracted: 01/18/91
Date Analyzed: 01/22/91
Dilution Factor: 10.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number		ug/L
91-20-3	Naphthalene	59			
91-57-6	2-Methylnaphthalene . . .	170			
90-12-0	1-Methylnaphthalene . . .	84			
208-96-8	Acenaphthylene	20 U			
83-32-9	Acenaphthene	20 U			
86-73-7	Fluorene.	20 U			
85-01-8	Phenanthrene.	29			
120-12-7	Anthracene.	20 U			
206-44-0	Fluoranthene.	20 U			
129-00-0	Pyrene.	20 U			
56-55-3	Benzo(a)anthracene. . . .	20 U			
218-01-9	Chrysene.	20 U			
205-99-2	Benzo(b)fluoranthene . .	20 U			
207-08-9	Benzo(k)fluoranthene . .	20 U			
50-32-8	Benzo(a)pyrene.	20 U			
193-39-5	Indeno(1,2,3-cd)pyrene. .	20 U			
53-70-3	Dibenzo(a,h)anthracene. .	20 U			
191-24-2	Benzo(g,h,i)perylene. . .	20 U			
	Terphenyl-d14 - SS	53			

U - Analyzed for but not detected.

B - Detected in QC blank.

JX - Detected, concentration estimated.

SS - Surrogate Standard reported as percent recovery.

Comments: The extract was diluted due to chemical interferences which were not removed during the cleanup efforts.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 01/18/91
 Lab Sample ID: 17593005 Sample Matrix: WATER Date Analyzed: 01/22/91
 Client Sample ID: D-34 Percent Moisture: Dilution Factor: 10.0

PNA COMPOUNDS

CAS Number	ug/L	CAS Number	ug/L
91-20-3	Naphthalene 68		
91-57-6	2-Methylnaphthalene . . . 220		
90-12-0	1-Methylnaphthalene . . . 130		
208-96-8	Acenaphthylene 20 U		
83-32-9	Acenaphthene 50 U		
86-73-7	Fluorene. 30 U		
85-01-8	Phenanthrene. 44		
120-12-7	Anthracene. 20 U		
206-44-0	Fluoranthene. 20 U		
129-00-0	Pyrene. 20 U		
56-55-3	Benzo(a)anthracene. . . . 20 U		
218-01-9	Chrysene. 20 U		
205-99-2	Benzo(b)fluoranthene . . . 20 U		
207-08-9	Benzo(k)fluoranthene . . . 20 U		
50-32-8	Benzo(a)pyrene. 20 U		
193-39-5	Indeno(1,2,3-cd)pyrene. . . 20 U		
53-70-3	Dibenzo(a,h)anthracene. . . 20 U		
191-24-2	Benzo(g,h,i)perylene. . . . 20 U		
Terphenyl-d14 - SS 103			

U - Analyzed for but not detected.
 B - Detected in QC blank.
 JX - Detected, concentration estimated.
 SS - Surrogate Standard reported as percent recovery.

Comments: The extract was diluted due to chemical interferences which were not removed during the cleanup efforts. The detection limits for acenaphthene and fluorene were raised for the same reason.

Form I



000025



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: 17593009
Client Sample ID: D-57

Concentration: LOW
Sample Matrix: SLUDGE
Percent Moisture: *****

Date Extracted: 01/18/91
Date Analyzed: 01/22/91
Dilution Factor: 6000.0

PNA COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
91-20-3	Naphthalene	350,000	U	
91-57-6	2-Methylnaphthalene . . .	1,500,000		
90-12-0	1-Methylnaphthalene . . .	540,000		
208-96-8	Acenaphthylene	300,000	U	
83-32-9	Acenaphthene	300,000	U	
86-73-7	Fluorene.	300,000	U	
85-01-8	Phenanthrene.	320,000		
120-12-7	Anthracene.	300,000	U	
206-44-0	Fluoranthene.	300,000	U	
129-00-0	Pyrene.	300,000	U	
56-55-3	Benzo(a)anthracene. . . .	300,000	U	
218-01-9	Chrysene.	300,000	U	
205-99-2	Benzo(b)fluoranthene . .	300,000	U	
207-08-9	Benzo(k)fluoranthene . .	300,000	U	
50-32-8	Benzo(a)pyrene.	300,000	U	
193-39-5	Indeno(1,2,3-cd)pyrene. .	300,000	U	
53-70-3	Dibenzo(a,h)anthracene. .	300,000	U	
191-24-2	Benzo(g,h,i)perylene. . .	300,000	U	
	Terphenyl-d14 SS	0		

U - Analyzed for but not detected.

B - Detected in QC blank.

JX - Detected, concentration estimated.

SS - Surrogate Standard reported as percent recovery.

*****- These results are reported on a "wet" weight basis.

Comments: The original sample contained at least two layers. The top layer was extracted since most of the fine solids were suspended in that layer. The extract was diluted due to chemical interferences which were not removed during cleanup efforts. The detection limit for naphthalene was raised for the same reason. No surrogate was detected due to the high dilution factor.

Form I

000026

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 01/18/91
Lab Sample ID: W01181B1 Sample Matrix: WATER Date Analyzed: 01/22/91
Client Sample ID: QC BLANK Percent Moisture: Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	2 U		
91-57-6	2-Methylnaphthalene . . .	2 U		
90-12-0	1-Methylnaphthalene . . .	2 U		
208-96-8	Acenaphthylene	2 U		
83-32-9	Acenaphthene	2 U		
86-73-7	Fluorene.	2 U		
85-01-8	Phenanthrene.	2 U		
120-12-7	Anthracene.	2 U		
206-44-0	Fluoranthene.	2 U		
129-00-0	Pyrene.	2 U		
56-55-3	Benzo(a)anthracene. . . .	2 U		
218-01-9	Chrysene.	2 U		
205-99-2	Benzo(b)fluoranthene . .	2 U		
207-08-9	Benzo(k)fluoranthene . .	2 U		
50-32-8	Benzo(a)pyrene.	2 U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	2 U		
53-70-3	Dibenzo(a,h)anthracene. .	2 U		
191-24-2	Benzo(g,h,i)perylene. . .	2 U		

Terphenyl-d14 - SS 115

- U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

JS

000027



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
Lab Sample ID: S01181B1
Client Sample ID: QC BLANK

Concentration: LOW
Sample Matrix: SLUDGE
Percent Moisture:

Date Extracted: 01/18/91
Date Analyzed: 01/22/91
Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/Kg	CAS Number	ug/Kg
91-20-3	Naphthalene	50 U		
91-57-6	2-Methylnaphthalene . . .	50 U		
90-12-0	1-Methylnaphthalene . . .	50 U		
208-96-8	Acenaphthylene	50 U		
83-32-9	Acenaphthene	50 U		
86-73-7	Fluorene	50 U		
85-01-8	Phenanthrene	50 U		
120-12-7	Anthracene	50 U		
206-44-0	Fluoranthene	50 U		
129-00-0	Pyrene	50 U		
56-55-3	Benzo(a)anthracene . . .	50 U		
218-01-9	Chrysene	50 U		
205-99-2	Benzo(b)fluoranthene . .	50 U		
207-08-9	Benzo(k)fluoranthene . .	50 U		
50-32-8	Benzo(a)pyrene	50 U		
193-39-5	Indeno(1,2,3-cd)pyrene .	50 U		
53-70-3	Dibenzo(a,h)anthracene .	50 U		
191-24-2	Benzo(g,h,i)perylene . .	50 U		
	Terphenyl-d14 SS	111		

U - Analyzed for but not detected.

B - Detected in QC blank.

JX - Detected, concentration estimated.

SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

000028

RELATIVE RESPONSE FACTORS

COMPOUND	LEVEL 1 40 ppm	LEVEL 2 30 ppm	LEVEL 3 20 ppm	LEVEL 4 10 ppm	LEVEL 5 2 ppm	MEAN	RSD	COMPOUND
#I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 1
#2,3-BENZOFURAN	0.657764	0.614560	0.575355	0.542839	0.563471	0.5908	7.7%	#2,3-BENZOFURAN
2,3-BENZOFURAN	0.722422	0.686593	0.643544	0.623493	0.646110	0.6644	6.0%	2,3-BENZOFURAN
I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 1
#NAPHTHALENE	1.103834	1.097440	0.956063	0.932835	0.938658	1.0058	8.7%	#NAPHTHALENE
#2-METHYLNAPHTHALE	1.126356	1.143455	1.004466	1.009805	1.020245	1.0609	6.4%	#2-METHYLNAPHTHALE
#1-METHYLNAPHTHALE	1.059085	1.080122	0.977524	0.978504	1.010199	1.0211	4.6%	#1-METHYLNAPHTHALE
NAPHTHALENE	0.918473	0.939021	0.847078	0.849307	0.838226	0.8784	5.3%	NAPHTHALENE
#I.S. 2	1.042108	1.020315	1.103782	1.074129	1.075912	1.0632	3.1%	#I.S. 2
#I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 3
2-METHYLNAPHTHALE	0.972589	0.977784	0.891510	0.911757	0.940537	0.9388	4.0%	2-METHYLNAPHTHALE
1-METHYLNAPHTHALE	0.946214	0.961942	0.866259	0.903773	0.924863	0.9206	4.1%	1-METHYLNAPHTHALE
#ACENAPHTHYLENE	0.581821	0.621531	0.643068	0.626671	0.592315	0.6131	4.1%	#ACENAPHTHYLENE
#ACENAPHTHENE	0.530167	0.565748	0.599929	0.588292	0.569438	0.5707	4.7%	#ACENAPHTHENE
I.S. 2	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 2
#FLUORENE	0.523391	0.558260	0.586351	0.579246	0.570618	0.5636	4.4%	#FLUORENE
ACENAPHTHYLENE	0.900520	0.910383	0.853264	0.846870	0.872686	0.8767	3.2%	ACENAPHTHYLENE
ACENAPHTHENE	0.819254	0.837017	0.797434	0.796121	0.745107	0.7990	4.3%	ACENAPHTHENE
FLUORENE	0.830045	0.856964	0.807842	0.828215	0.851958	0.8350	2.4%	FLUORENE
I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 3
#PHENANTHRENE	0.485105	0.521728	0.540406	0.541450	0.565408	0.5308	5.6%	#PHENANTHRENE
#ANTHRACENE	0.474181	0.510269	0.544465	0.547471	0.572022	0.5297	7.2%	#ANTHRACENE
#I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 4
PHENANTHRENE	0.512455	0.534161	0.528176	0.529237	0.528046	0.5264	1.6%	PHENANTHRENE
ANTHRACENE	0.512922	0.534399	0.529196	0.527044	0.465621	0.5138	5.5%	ANTHRACENE
#FLUORANTHENE	0.447205	0.480133	0.503503	0.507970	0.505495	0.4889	5.3%	#FLUORANTHENE
I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 4
#PYRENE	0.440412	0.467344	0.485696	0.486807	0.493632	0.4748	4.5%	#PYRENE
#TERPHENYL-d14	0.505039	0.536004	0.552178	0.565243	0.565601	0.5448	4.6%	#TERPHENYL-d14
FLUORANTHENE	0.471558	0.482432	0.481897	0.472096	0.428238	0.4672	4.8%	FLUORANTHENE
#I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 5
PYRENE	0.463225	0.477567	0.481809	0.484458	0.490833	0.4796	2.2%	PYRENE
TERPHENYL-d14	0.515651	0.531604	0.536432	0.539532	0.536028	0.5318	1.8%	TERPHENYL-d14
#BENZO(A)ANTHRACENE	0.928145	0.982206	1.027677	1.045165	1.066790	1.0100	5.5%	#BENZO(A)ANTHRACENE
#CHRYSENE	0.948385	0.999003	1.038127	1.050644	1.031060	1.0134	4.1%	#CHRYSENE
I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 5
BENZO(A)ANTHRACENE	0.955965	0.976459	0.970303	0.973406	0.993869	0.9740	1.4%	BENZO(A)ANTHRACENE
CHRYSENE	0.964907	0.990228	0.984619	0.987967	0.988188	0.9832	1.1%	CHRYSENE
#BENZO(B)FLUORANTH	0.891987	0.938529	0.951858	0.976774	1.011299	0.9541	4.7%	#BENZO(B)FLUORANTH
#BENZO(K)FLUORANTH	0.903425	0.940813	0.977032	0.978219	1.012209	0.9623	4.3%	#BENZO(K)FLUORANTH
#BENZO(A)PYRENE	0.942453	0.970441	0.987022	1.011344	1.020765	0.9864	3.2%	#BENZO(A)PYRENE
#I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 6
BENZO(B)FLUORANTH	0.893191	0.906143	0.888723	0.903944	0.916836	0.9018	1.2%	BENZO(B)FLUORANTH
BENZO(K)FLUORANTH	0.926087	0.945611	0.937658	0.937095	0.921355	0.9336	1.0%	BENZO(K)FLUORANTH
BENZO(A)PYRENE	0.936025	0.948006	0.935947	0.944944	0.947181	0.9424	0.6%	BENZO(A)PYRENE
I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 6
#INDENO(123-CD)PYR	0.969261	1.013854	1.029134	1.071122	1.147291	1.0461	6.4%	#INDENO(123-CD)PYR
#DIBENZO(AH)ANTHRA	0.973338	1.008078	1.019165	1.053169	1.120081	1.0348	5.4%	#DIBENZO(AH)ANTHRA
#BENZO(GHI)PERYLENE	0.975810	1.002238	0.994982	1.031620	1.039068	1.0087	2.6%	#BENZO(GHI)PERYLENE
INDENO(123-CD)PYRE	0.961514	0.982016	0.963894	0.997804	1.042404	0.9895	3.3%	INDENO(123-CD)PYRE
DIBENZO(AH)ANTHRAC	0.996601	0.995139	0.971141	0.977414	1.027841	0.9936	2.2%	DIBENZO(AH)ANTHRAC
BENZO(GHI)PERYLENE	0.967522	0.979849	0.941809	0.966693	0.970803	0.9653	1.5%	BENZO(GHI)PERYLENE

000029

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000
 GC INJECTION LOG NUMBER: D4118
 INSTRUMENT: 04 INITIAL CALIBRATION: ~~DEC 10, 1990~~ JAN 18, 1991 JMW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.56665	-4.1
2,3-BENZOFURAN	0.72092	0.66443	0.63930	-3.8
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.00241	-0.3
#2-METHYLNAPHTHALE	1.01468	1.06087	1.05181	-0.9
#1-METHYLNAPHTHALE	0.98706	1.02109	1.02666	0.5
NAPHTHALENE	0.89772	0.87842	0.86772	-1.2
#I.S. 2	1.16823	1.06325	1.07357	1.0
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALE	0.88049	0.93884	0.90945	-3.1
1-METHYLNAPHTHALE	0.86430	0.92061	0.89808	-2.4
#ACENAPHTHYLENE	0.71027	0.61308	0.65474	6.8
#ACENAPHTHENE	0.65652	0.57071	0.60720	6.4
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.59205	5.1
ACENAPHTHYLENE	1.04975	0.87674	0.86909	-0.9
ACENAPHTHENE	0.97900	0.79899	0.81087	1.5
FLUORENE	0.98383	0.83500	0.82302	-1.4
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.54118	2.0
#ANTHRACENE	0.62901	0.52968	0.54560	3.0
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.52687	0.1
ANTHRACENE	0.62636	0.51384	0.52889	2.9
#FLUORANTHENE	0.58343	0.48886	0.49643	1.5
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.47409	-0.1
#TERPHENYL-d14	0.60379	0.54481	0.54954	0.9
FLUORANTHENE	0.57517	0.46724	0.47602	1.9
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.47576	-0.8
TERPHENYL-d14	0.58693	0.53185	0.53001	-0.3
#BENZO(A)ANTHRACEN	1.11793	1.01000	1.00307	-0.7
#CHRYSENE	1.10824	1.01344	1.01587	0.2
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO(A)ANTHRACENE	1.12438	0.97400	0.96096	-1.3
CHRYSENE	1.09070	0.98318	0.97524	-0.8
#BENZO(B)FLUORANTH	1.01718	0.95409	0.93811	-1.7
#BENZO(K)FLUORANTH	1.08931	0.96234	0.95324	-0.9
#BENZO(A)PYRENE	1.04437	0.98640	0.97153	-1.5
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO(B)FLUORANTHE	1.03038	0.90177	0.89640	-0.6
BENZO(K)FLUORANTHE	1.08529	0.93356	0.92425	-1.0
BENZO(A)PYRENE	1.04589	0.94242	0.93467	-0.8
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO(123-CD)Pyr	1.05372	1.04613	1.02984	-1.6
#DIBENZO(AH)ANTHRA	1.03899	1.03477	1.02372	-1.1

000030

INDENO(123-CD)PYRE	1.08008	0.98955	0.98003	-1.0
DIBENZO(AH)ANTHRAC	1.06174	0.99363	0.98310	-1.1
BENZO(GHI)PERYLENE	0.95157	0.96534	0.96026	-0.5

PERCENT DIFFERENCE = $\frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$

D4118

000031

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000
 GC INJECTION LOG NUMBER: D4125
 INSTRUMENT: 04 INITIAL CALIBRATION: ~~DEC 10, 1990~~ JAN 18, 1991 JFW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.54853	-7.2
2,3-BENZOFURAN	0.72092	0.66443	0.63232	-4.8
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.04928	4.3
#2-METHYLNAPHTHALE	1.01468	1.06087	1.10364	4.0
#1-METHYLNAPHTHALE	0.98706	1.02109	1.05646	3.5
NAPHTHALENE	0.89772	0.87842	0.89638	2.0
#I.S. 2	1.16823	1.06325	1.02369	-3.7
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALE	0.88049	0.93884	0.95509	1.7
1-METHYLNAPHTHALE	0.86430	0.92061	0.94198	2.3
#ACENAPHTHYLENE	0.71027	0.61308	0.64886	5.8
#ACENAPHTHENE	0.65652	0.57071	0.59800	4.8
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.58447	3.7
ACENAPHTHYLENE	1.04975	0.87674	0.90052	2.7
ACENAPHTHENE	0.97900	0.79899	0.83712	4.8
FLUORENE	0.98383	0.83500	0.85358	2.2
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.54564	2.8
#ANTHRACENE	0.62901	0.52968	0.54206	2.3
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.52650	0.0
ANTHRACENE	0.62636	0.51384	0.52952	3.1
#FLUORANTHENE	0.58343	0.48886	0.49609	1.5
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.48125	1.4
#TERPHENYL-d14	0.60379	0.54481	0.55378	1.6
FLUORANTHENE	0.57517	0.46724	0.47736	2.2
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.47887	-0.1
TERPHENYL-d14	0.58693	0.53185	0.53220	0.1
#BENZO(A)ANTHRACEN	1.11793	1.01000	1.00188	-0.8
#CHRYSENE	1.10824	1.01344	1.01771	0.4
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO(A)ANTHRACENE	1.12438	0.97400	0.97399	0.0
CHRYSENE	1.09070	0.98318	0.98701	0.4
#BENZO(B)FLUORANTH	1.01718	0.95409	0.93770	-1.7
#BENZO(K)FLUORANTH	1.08931	0.96234	0.96485	0.3
#BENZO(A)PYRENE	1.04437	0.98640	0.97829	-0.8
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO(B)FLUORANTHE	1.03038	0.90177	0.90330	0.2
BENZO(K)FLUORANTHE	1.08529	0.93356	0.93507	0.2
BENZO(A)PYRENE	1.04589	0.94242	0.93920	-0.3
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO(123-CD)PYR	1.05372	1.04613	1.02832	-1.7
#DIBENZO(AH)ANTHRA	1.03899	1.03477	1.01067	-2.3

000032

INDENO(123-CD)PYRE	1.08008	0.98955	0.98783	-0.2
DIBENZO(AH)ANTHRAC	1.06174	0.99363	0.98918	-0.4
BENZO(GHI)PERYLENE	0.95157	0.96534	0.96635	0.1

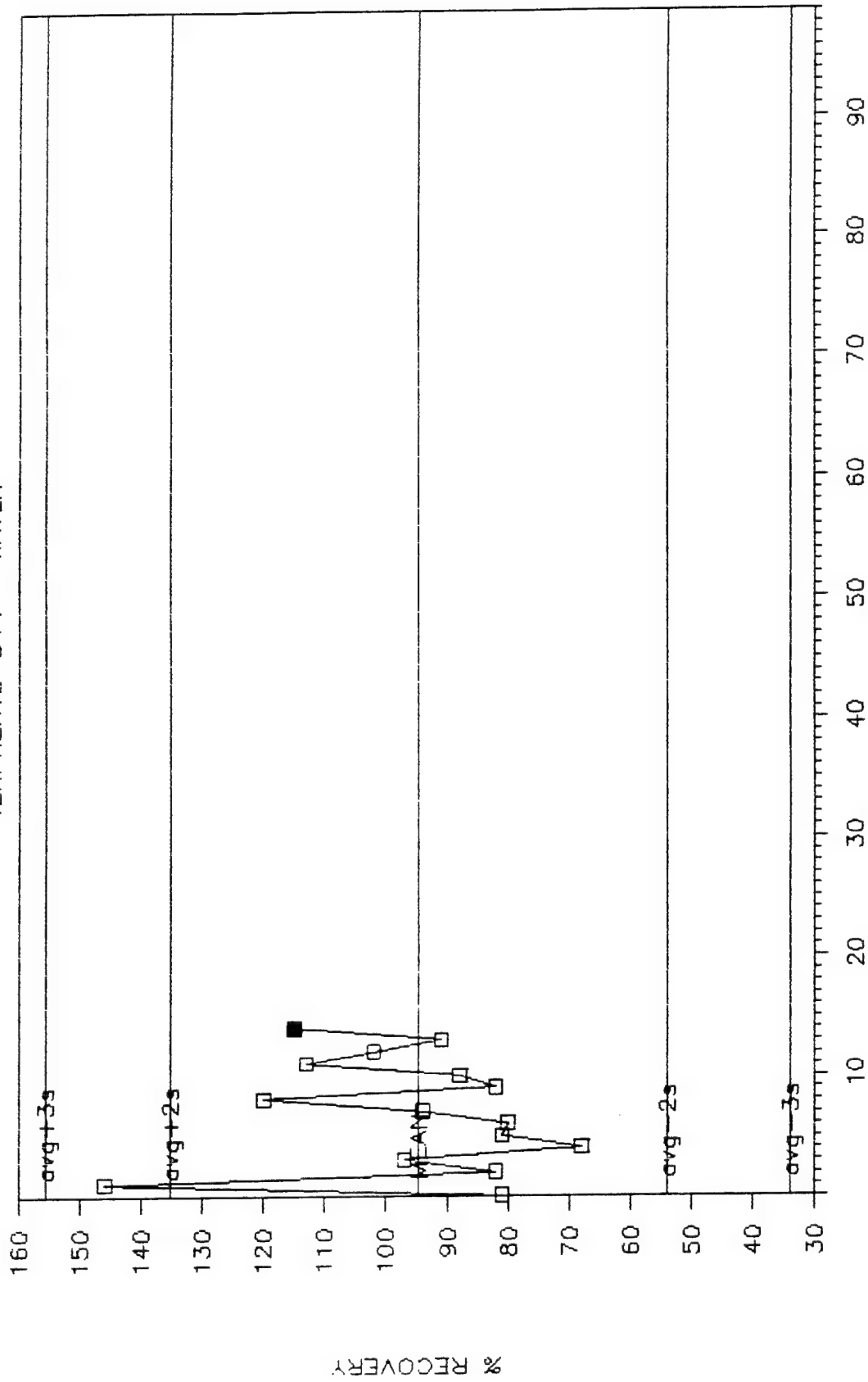
$$\text{PERCENT DIFFERENCE} = \frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$$

D4125

000033

SURROGATE RECOVERY - PNA

TERPHENYL-D14 - WATER



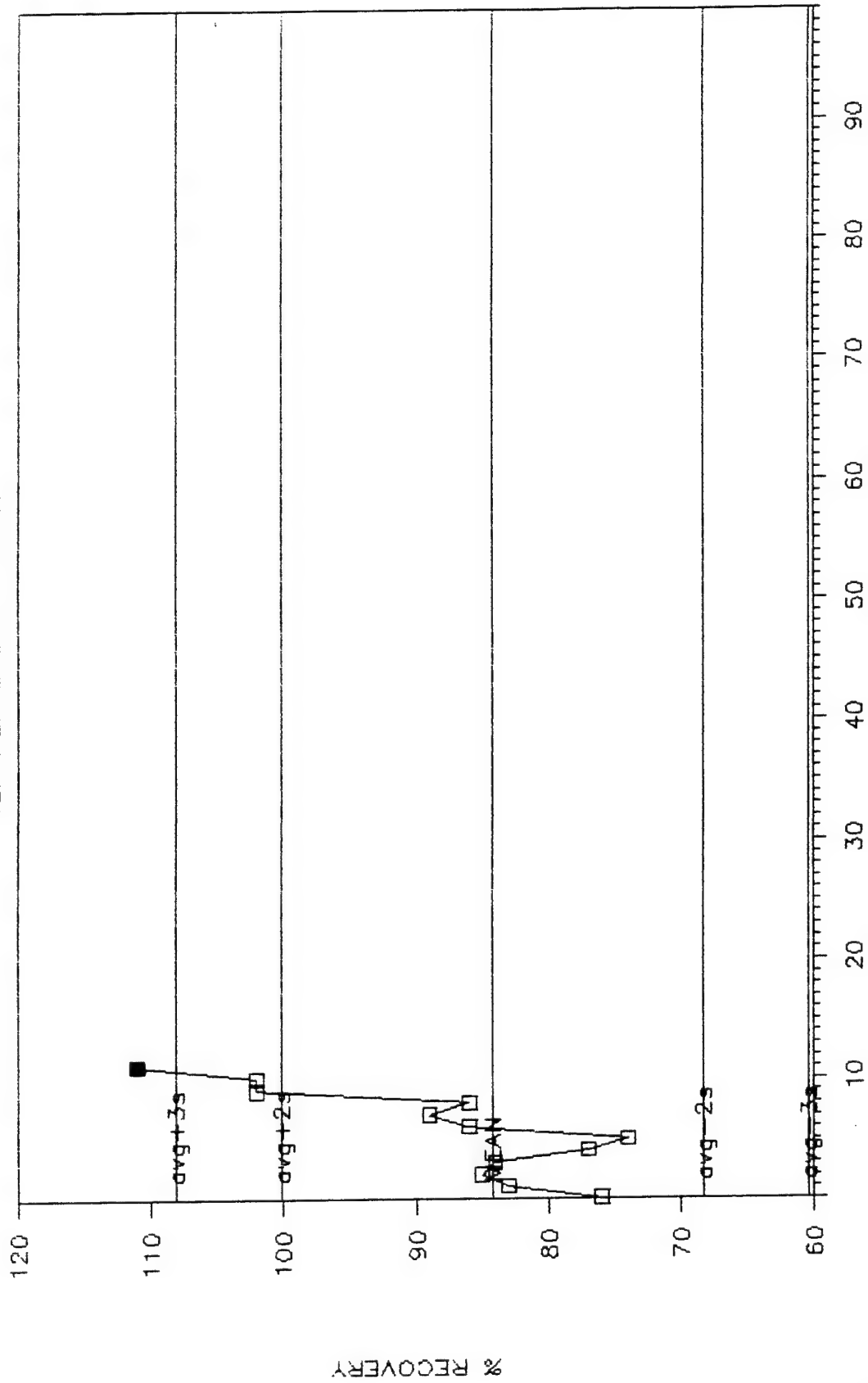
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WATER (Sep. Funnel)			GC PNAs		0					
SAMPLE #	DATE	T-D14 SURROGATE % REC.	T-D14 ACCEPT. OUTLIER		COMMENTS					
			?	?						
1	W08089B1	8/13/89	81.0	YES	ERR	NO	NO	NO	NO	
2	W10249B1	11/15/89	146.0	NO	ERR	NO	NO	NO	NO	
3	W10269B1	11/15/89	82.0	YES	NO	NO	NO	NO	NO	
4	W11139B1	12/05/89	97.0	YES	NO	NO	NO	NO	NO	
5	W03140B1	3/18/90	68.0	NO	NO	NO	NO	NO	NO	
6	W04020B1	4/16/90	81.0	YES	NO	NO	NO	NO	NO	
7	W04240B1	5/4/90	80.0	YES	NO	NO	NO	NO	NO	
8	W04250B1	5/5/90	94.0	YES	NO	NO	NO	NO	NO	
9	W04270B1	5/5/90	120.0	YES	NO	NO	NO	NO	NO	
10	W05080B1	5/21/90	82.0	YES	NO	NO	NO	NO	NO	
11	W05040B1	5/22/90	88.0	YES	NO	NO	NO	NO	NO	
12	W09060B1	9/11/90	113.0	YES	NO	NO	NO	NO	NO	
13	W09170B1	9/19/90	102.0	YES	NO	NO	NO	NO	NO	
14	W09180b1	9/20/90	91.0	YES	NO	NO	NO	NO	NO	
→ 15	W01181B1	1/22/91	115.0	YES	NO	NO	NO	NO	NO	
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SURROGATE RECOVERY - PNAGA

TERPHENYL-D14 -- SOILS



000036

SOILS

GC PNAs

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SAMPLE #	DATE	T-D14 SURROGATE % REC.	T-D14 ACCEPT. OUTLIER ? ?	COMMENTS
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1	S0825981	09/08/89	76.0	NO ERR NO NO NO NO
2	S0322081	3/30/90	83.0	YES ERR NO NO NO NO
3	S0307081	4/2/90	85.0	YES NO NO NO NO NO
4	S0330081	4/16/90	84.0	YES NO NO NO NO NO
5	S0529081	6/1/90	77.0	YES NO NO NO NO NO
6	S0709082	7/10/90	74.0	NO NO NO NO NO NO
7	S0710081	7/13/90	86.0	YES NO NO NO NO NO
8	S0712081	7/13/90	89.0	YES NO NO NO NO NO
9	S0710081	7/14/90	86.0	YES NO NO NO NO NO
10	S0926081	10/05/90	102.0	NO NO NO NO NO NO
11	S1002081	10/15/90	102.0	NO NO NO NO NO NO
→ 12	S0118181	1/22/91	111.0	NO NO NO NO NO NO

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CASE NARRATIVE
Cations

Batch Number: 17593

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:
All holding times were met.

II. Analysis:

- A. Blanks:
All acceptance criteria were met.
- B. Calibration:
All acceptance criteria were met.
- C. ICP Interference Check Sample:
All acceptance criteria were met.
- D. Spike Sample Analysis:
All acceptance criteria were met.
- E. Duplicate Sample Analysis:
All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
All acceptance criteria were met.
- G. ICP Serial Dilution:
All acceptance criteria were met.
- H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 13 FEB 91

000038

CASE NARRATIVE
General Chemistry

Batch Number: 17593

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 13 FEB 91

000039



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-12 1000 COMP

Laboratory Sample Number: 17593002

Date Collected: 01/16/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	AMBNT	>212	F	02/07/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/23/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

0000.0



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: D-12-DUP 1000 COMP

Laboratory Sample Number: 17593003 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	AMBNT	>212	F	02/07/91
Lead	EPA239.2/SW7421	3	3	ug/L	01/23/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000041



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: D-34 1000 COMP
Laboratory Sample Number: 17593005 Date Collected: 01/16/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	AMBNT	>212	F	02/07/91
Lead	EPA239.2/SW7421	3	5	ug/L	01/23/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000042



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: D-57 1000 COMP

Laboratory Sample Number: 17593009 Date Collected: 01/16/91 Matrix: SLUDGE

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	IGNITABLE	----	02/05/91
Lead	EPA239.2/SW7421	120	853.2	mg/kg	01/24/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000043



REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J. P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZW1

Date Collected: 01/16/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	AMBNT	>212	F	02/07/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/24/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000044

®



Engineers
Planners
Economists
Scientists

REPORT OF ANALYTICAL RESULTS

Date: 02/13/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17593
Date Received: 01/16/91

Atten: MR. J. P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 17593ZS1 Date Collected: 01/16/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Ignitability	SW846(1C):7.1	----	NA	----	02/05/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/24/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000045

CH2MHILL

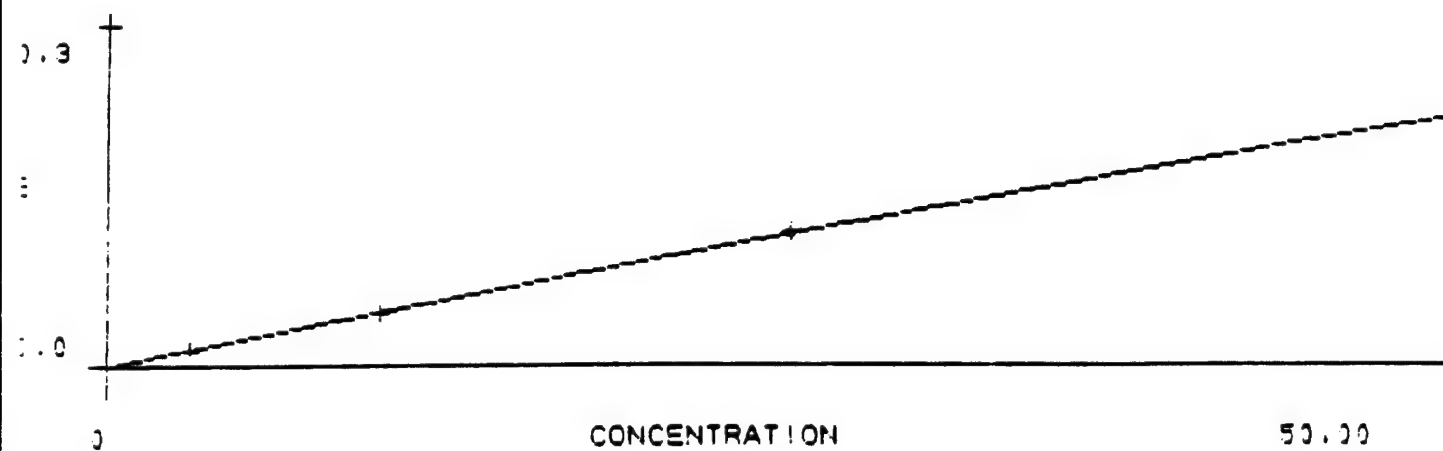
Quality
Analytical Laboratories

2567 Fairlane Drive, P O Box 230548,
Montgomery, Alabama 36116

205 271 1444

INITIAL CALIBRATION

LEAD



0 OF 5

TIME: 0

TEMPERATURE: 25

AS POSITION: 27
TIME: 17:01

CONCENTRATION (ug/L)

ABSORBANCE

3.0
10.0
25.0
50.0

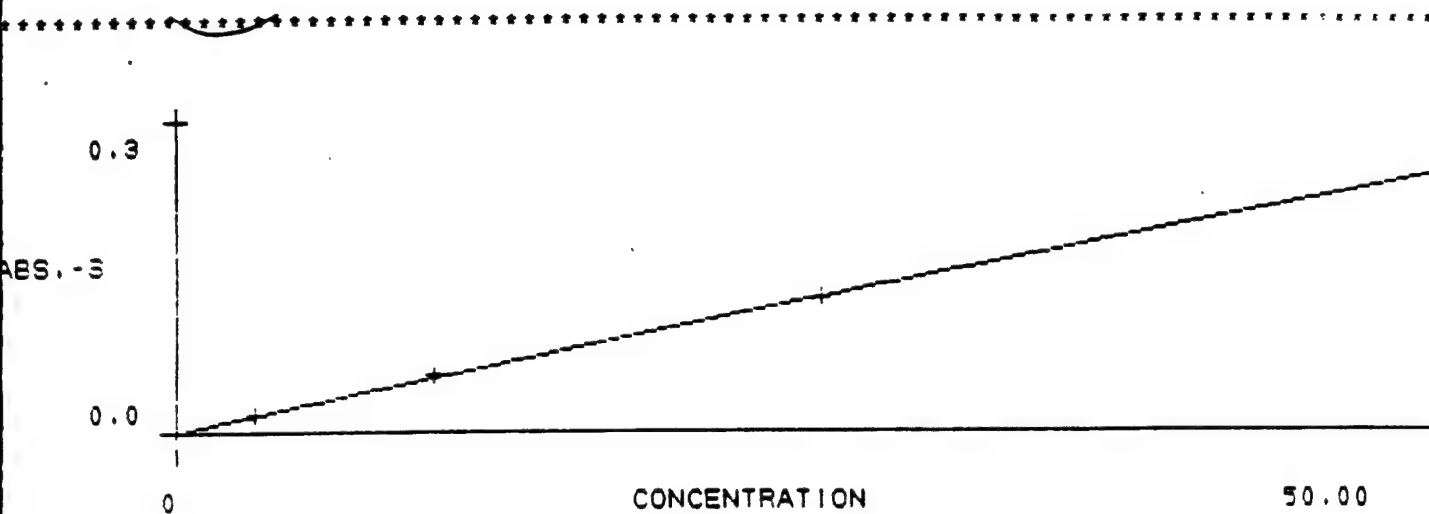
0.042
0.081
0.160
0.307

Correlation Coefficient = 0.9997

000046

INITIAL CALIBRATION

LEAD



STEP 0 OF 5

TIME: 0

TEMPERATURE: 25

AS POSITION: 7

TIME: 13:11

CONCENTRATION (ug/L)

ABSORBANCE

3.0
10.0
25.0
50.0

0.066
0.128
0.262
0.470

Correlation Coefficient = 0.9999

000047

LEVEL 1

Batch Number(s): 17593

[illegible]

000048

INITIAL AND CONTINUING CALIBRATION VERIFICATION
LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s) : 17593

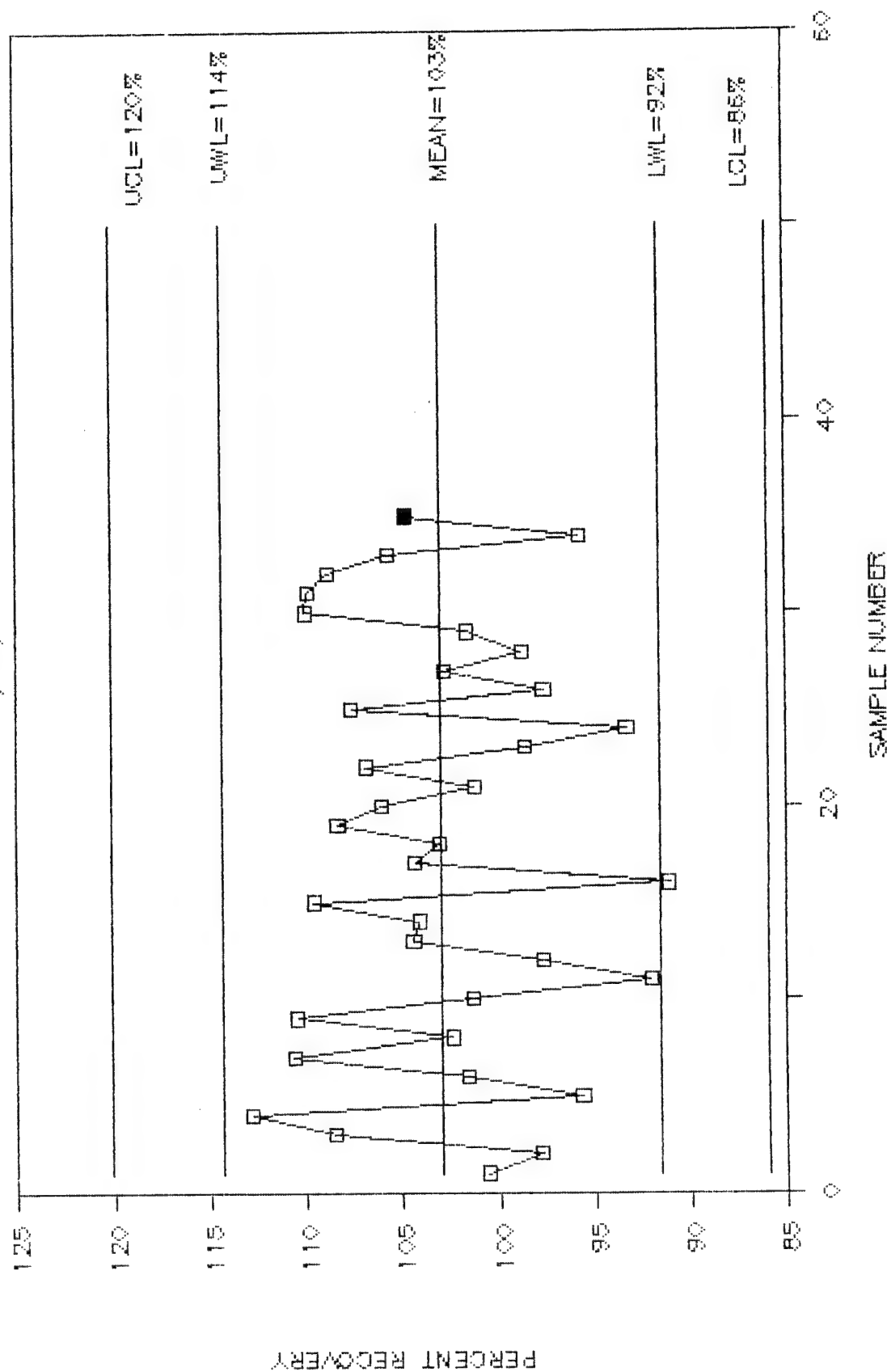
[illegible]

Control Limits: 90.0-110.0 (except as noted)

000049

LABORATORY CONTROL SAMPLE (WATER) -- LEAD

01/24/91



000050

SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
01/24/91 WATER MATRIX

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC	
1	16702	06SEPT90	XXXXXXXXXX	39	39.220	100.6
2	16737	10SEPT90	XXXXXXXXXX	39	38.130	97.8
3	16858	01OCT90	XXXXXXXXXX	39	42.310	108.5
4	16789	02OCT90	XXXXXXXXXX	39	43.990	112.8
5	16942	05OCT90	XXXXXXXXXX	39	37.300	95.6
6	16933	08OCT90	XXXXXXXXXX	39	39.620	101.6
7	17000	16OCT90	XXXXXXXXXX	39	43.160	110.7
8	17033	17OCT90	XXXXXXXXXX	39	39.930	102.4
9	16999	19OCT90	XXXXXXXXXX	39	43.080	110.5
10	17037	22OCT90	XXXXXXXXXX	39	39.520	101.3
11	17047	22OCT90	XXXXXXXXXX	39	35.920	92.1
12	17034	25OCT90	XXXXXXXXXX	39	38.100	97.7
13	17074	29OCT90	XXXXXXXXXX	39	40.720	104.4
14	17127	05NOV90	XXXXXXXXXX	39	40.600	104.1
15	17140	07NOV90	XXXXXXXXXX	39	42.740	109.6
16	17093	07NOV90	XXXXXXXXXX	39	35.530	91.1
17	17168	14NOV90	XXXXXXXXXX	39	40.690	104.3
18	17213	14NOV90	XXXXXXXXXX	39	40.190	103.1
19	17227	27NOV90	XXXXXXXXXX	39	42.250	108.3
20	17250	27NOV90	XXXXXXXXXX	39	41.360	106.1
21	17274	04DEC90	XXXXXXXXXX	39	39.490	101.3
22	17297	04DEC90	XXXXXXXXXX	39	41.680	106.9
23	17349	07DEC90	XXXXXXXXXX	39	38.440	98.6
24	17313	07DEC90	XXXXXXXXXX	39	36.380	93.3
25	12/10/90	14DEC90	XXXXXXXXXX	39	41.950	107.6
26	12/12/90	14DEC90	XXXXXXXXXX	39	38.070	97.6
27	12/14/90	18DEC90	XXXXXXXXXX	39	40.080	102.8
28	12/17/90	26DEC90	XXXXXXXXXX	39	38.510	98.7
29	12/20/90	26DEC90	XXXXXXXXXX	39	39.630	101.6
30	12/24/90	28DEC90	XXXXXXXXXX	39	42.900	110.0
31	01/02/91	07JAN91	XXXXXXXXXX	39	42.850	109.9
32	01/08/91	15JAN91	XXXXXXXXXX	39	42.430	108.8
33	01/15/91	16JAN91	XXXXXXXXXX	39	41.200	105.6
34	01/17/91	18JAN91	XXXXXXXXXX	39	37.340	95.7
35	01/22/91	23JAN91	XXXXXXXXXX	39	40.840	104.7
36						
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50						

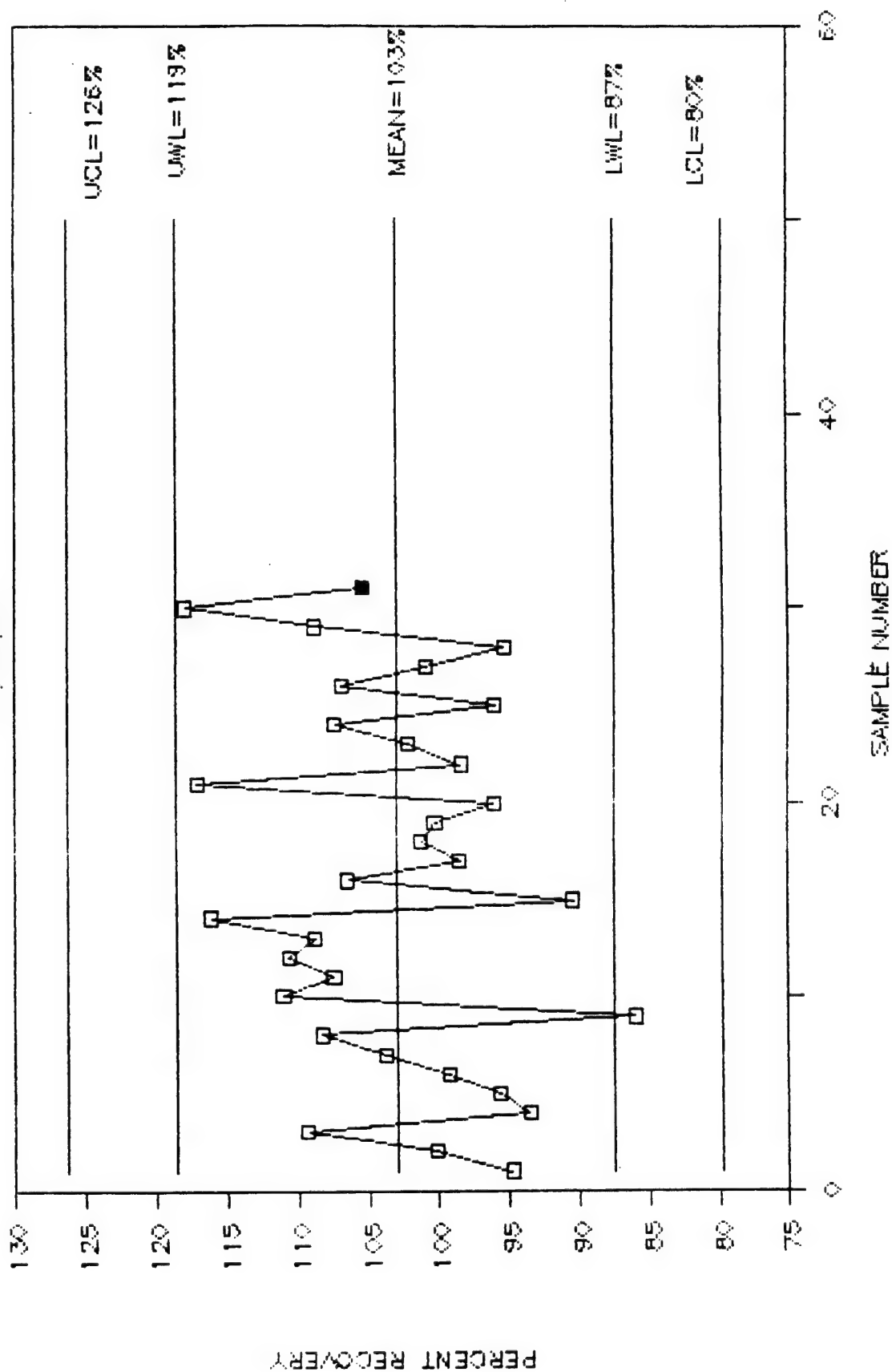
MEAN RECOVERY = 103.0146
STD(N-1) = 5.693572
2 STD(N-1) = 11.38714
3 STD(N-1) = 17.08071

X	X+2S	X+3S	X-2S	X-3S
103.0	114.4	120.1	91.6	85.9
MEAN	UWL	UCL	LWL	LCL

000051

LABORATORY CONTROL SAMPLE (SOIL) - LEAD

01/25/91



000052

SHORT-TERM DATA SUMMARY
 LEAD LABORATORY CONTROL SAMPLE
 01/25/91 SOIL MATRIX - FURNACE

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	Z REC
1	16293 16JULY90	XXXXXXXXXX	236	223.700	94.8
2	16356 23JULY90	XXXXXXXXXX	236	236.400	100.2
3	16397 26JULY90	XXXXXXXXXX	236	257.900	109.3
4	16356 31JULY90	XXXXXXXXXX	236	220.800	93.6
5	16492 07AUG90	XXXXXXXXXX	236	225.700	95.6
6	16526 16AUG90	XXXXXXXXXX	236	234.300	99.3
7	16663 31AUG90	XXXXXXXXXX	236	244.800	103.7
8	16712 06SEPT90	XXXXXXXXXX	236	255.500	108.3
9	16823 19SEPT90	XXXXXXXXXX	236	202.900	86.0
10	16835 01OCT90	XXXXXXXXXX	236	262.000	111.0
11	16906 02OCT90	XXXXXXXXXX	236	253.600	107.5
12	16923 12OCT90	XXXXXXXXXX	236	261.000	110.6
13	17033 17OCT90	XXXXXXXXXX	236	256.700	108.8
14	16931 19OCT90	XXXXXXXXXX	236	274.000	116.1
15	17037 22OCT90	XXXXXXXXXX	236	213.400	90.4
16	16992 29OCT90	XXXXXXXXXX	236	251.100	106.4
17	17103 05NOV90	XXXXXXXXXX	236	232.400	98.5
18	17093 07NOV90	XXXXXXXXXX	236	238.900	101.2
19	17147 12NOV90	XXXXXXXXXX	236	236.600	100.3
20	17179 12NOV90	XXXXXXXXXX	236	226.700	96.1
21	17268 06DEC90	XXXXXXXXXX	236	276.400	117.1
22	17320 07DEC90	XXXXXXXXXX	236	232.200	98.4
23	17349 07DEC90	XXXXXXXXXX	236	241.100	102.2
24	11/26/90 07DEC90	XXXXXXXXXX	236	253.200	107.3
25	12/10/90 14DEC90	XXXXXXXXXX	236	226.600	96.0
26	12/14/90 18DEC90	XXXXXXXXXX	236	252.100	106.8
27	12/20/90 26DEC90	XXXXXXXXXX	236	238.200	100.9
28	01/02/91 04JAN91	XXXXXXXXXX	236	225.000	95.3
29	01/08/91 15JAN91	XXXXXXXXXX	236	256.700	108.8
30	01/15/91 16JAN91	XXXXXXXXXX	236	278.300	117.9
31	01/23/91 24JAN91	XXXXXXXXXX	236	248.700	105.4 ←
32					
33					
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42					
43					
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45					
46					
47					
48					
49					
50					

MEAN RECOVERY = 103.0194
 STD(N-1) = 7.775340
 2 STD(N-1) = 15.55068
 3 STD(N-1) = 23.32602

X 103.0
 MEAN
 X+2S 118.6
 UWL
 X+3S 126.3
 UCL
 X-2S 87.5
 LWL
 X-3S 79.7
 LCL

000053



Client: HAZWRAP-CH2M HILL/MGM/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Sample Number: 89302-03, 89305, 89308-09, 89312
Date Received: 01/21/91

Dear Client:

The Gainesville Organics Laboratory received your samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.

If you should have any questions concerning the results please contact us. Thank you.

Sincerely,

Tom Emenhiser
Client Services

PLEASE ROUTE: 17593
ER 2/13 LAB RECEPTIONIST
4/13 DIVISION MGR.
6-11-91/13 DATA ENTRY
10-2-13 DATA PACKAGE

CH2M Hill Organics Laboratory

Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

Initial Calibration (*)

Continuing Calibration (Daily Standard) (*)

Quantitation Reports for Organic-Free Water Blanks

Matrix Spike/Matrix Spike Duplicate (*)

Surrogate Control Charts (*)

Chromatograms (*)

Copy of Chain-of-Custody

(*) Information provided where applicable or when requested.

SAMPLE INFORMATION

Client: HAZWRAP-CH2M HILL/MGM/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Description: WATER AND SOIL SAMPLES
BANG
601/602 AND 8010/8020 ANALYSES
LMG 17593

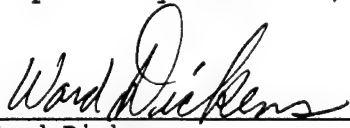
Sample Number: 89302-03, 89305, 89308-09, 89312
Quantity: 6
Date Received: 01/21/91
Date Completed: 01/27/91
Date Reported: 02/11/91
Project Number: MGM 27232.UB.SD
Number of Pages: 23

The information shown in this report is test data only
and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112, E82124

Respectfully submitted,


Ward Dickens
Laboratory Manager

Definitions of Reporting Qualifiers

Result Qualifiers

- (U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Reporting Limit for that compound. The Reporting Limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- (JX) Presence indicated but less than stated Reporting Limit. In a diluted sample, a clearly defined peak was present at less than the stated Reporting Limit.

Analysis (Run) Qualifiers

- (M) Matrix interference precludes achieving lower Reporting Limit. The Reporting Limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.
- (N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples, even if no target compounds are detected.

Reporting Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum Reporting Limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples; used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124

000058

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/16/91
Project: BANG	Lab Sample Id: 89302	Date Received: 01/21/91
Proj No: MGM 27232.UB.SD	% Moisture: 0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 10	Date Analyzed: 01/26/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: HS	Column: J & W DB-1	Date Reported: 01/31/91

Client Sample ID/Description: D-12 (M,N) (LMG 17593-02)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	10	U	ug/L
75-01-4	Vinyl Chloride	10	U	ug/L
74-83-9	Bromomethane	10	U	ug/L
75-00-3	Chloroethane	10	U	ug/L
75-69-4	Trichlorofluoromethane	10	U	ug/L
75-35-4	1,1-Dichloroethene	10	U	ug/L
75-09-2	Dichloromethane	10	U	ug/L
156-60-5	trans-1,2-Dichloroethene	10	U	ug/L
75-34-3	1,1-Dichloroethane	10	U	ug/L
67-66-3	Chloroform	10	U	ug/L
107-06-2	1,2-Dichloroethane	10	U	ug/L
71-55-6	1,1,1-Trichloroethane	10	U	ug/L
56-23-5	Carbon Tetrachloride	10	U	ug/L
78-87-5	1,2-Dichloropropane	10	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	10	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	10	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	10	U	ug/L
79-00-5	1,1,2-Trichloroethane	10	U	ug/L
124-48-1	Dibromochloromethane	10	U	ug/L
127-18-4	Tetrachloroethene	10	U	ug/L
108-90-7	Chlorobenzene	10	U	ug/L
75-25-2	Bromoform	10	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	10	U	ug/L
541-73-1	1,3-Dichlorobenzene	10	U	ug/L
106-46-7	1,4-Dichlorobenzene	10	U	ug/L
95-50-1	1,2-Dichlorobenzene	10	U	ug/L
1634-04-4	tert-Butyl methyl ether	10	U	ug/L
71-43-2	Benzene	10	49	ug/L
108-88-3	Toluene	10	U	ug/L
100-41-4	Ethylbenzene	10	U	ug/L
N/A	Xylenes (Total)	10	180	ug/L

74-97-5	Bromochloromethane-SS	91	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	88	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91



Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
Project: BANG
Proj No: MGM 27232.UB.SD
Method: 601/602
Matrix: WATER
Sampler: HS

Laboratory: GAINESVILLE
Lab Sample Id: 89303
% Moisture: 0
Dilution Factor: 10
Instrument ID: GC#2
Column: J & W DB-1

Date Sampled: 01/16/91
Date Received: 01/21/91
Date Extracted: N/A
Date Analyzed: 1/26/91
Analyst: CJ
Date Reported: 01/31/91

Client Sample ID/Description: D-12-DUP (M,N) (LMG 17593-03)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	10	U	ug/L
75-01-4	Vinyl Chloride	10	U	ug/L
74-83-9	Bromomethane	10	U	ug/L
75-00-3	Chloroethane	10	U	ug/L
75-69-4	Trichlorofluoromethane	10	U	ug/L
75-35-4	1,1-Dichloroethene	10	U	ug/L
75-09-2	Dichloromethane	10	U	ug/L
156-60-5	trans-1,2-Dichloroethene	10	U	ug/L
75-34-3	1,1-Dichloroethane	10	U	ug/L
67-66-3	Chloroform	10	U	ug/L
107-06-2	1,2-Dichloroethane	10	U	ug/L
71-55-6	1,1,1-Trichloroethane	10	U	ug/L
56-23-5	Carbon Tetrachloride	10	U	ug/L
78-87-5	1,2-Dichloropropane	10	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	10	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	10	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	10	U	ug/L
79-00-5	1,1,2-Trichloroethane	10	U	ug/L
124-48-1	Dibromochloromethane	10	U	ug/L
127-18-4	Tetrachloroethene	10	U	ug/L
108-90-7	Chlorobenzene	10	U	ug/L
75-25-2	Bromoform	10	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	10	U	ug/L
541-73-1	1,3-Dichlorobenzene	10	U	ug/L
106-46-7	1,4-Dichlorobenzene	10	U	ug/L
95-50-1	1,2-Dichlorobenzene	10	U	ug/L
1634-04-4	tert-Butyl methyl ether	10	U	ug/L
71-43-2	Benzene	10	42	ug/L
108-88-3	Toluene	10	U	ug/L
100-41-4	Ethylbenzene	10	U	ug/L
N/A	Xylenes (Total)	10	140	ug/L

74-97-5	Bromochloromethane-SS	106	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	89	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000000

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/16/91
Project: BANG	Lab Sample Id: 89305	Date Received: 01/21/91
Proj No: MGM 27232.UB.SD	% Moisture: 0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 10	Date Analyzed: 01/26/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: HS	Column: J & W DB-1	Date Reported: 01/31/91

Client Sample ID/Description: D-34 (M,N) (LMG 17593-05)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	10	U	ug/L
75-01-4	Vinyl Chloride	10	U	ug/L
74-83-9	Bromomethane	10	U	ug/L
75-00-3	Chloroethane	10	U	ug/L
75-69-4	Trichlorofluoromethane	10	U	ug/L
75-35-4	1,1-Dichloroethene	10	U	ug/L
75-09-2	Dichloromethane	10	U	ug/L
156-60-5	trans-1,2-Dichloroethene	10	U	ug/L
75-34-3	1,1-Dichloroethane	10	U	ug/L
67-66-3	Chloroform	10	U	ug/L
107-06-2	1,2-Dichloroethane	10	U	ug/L
71-55-6	1,1,1-Trichloroethane	10	U	ug/L
56-23-5	Carbon Tetrachloride	10	U	ug/L
78-87-5	1,2-Dichloropropane	10	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	10	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	10	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	10	U	ug/L
79-00-5	1,1,2-Trichloroethane	10	U	ug/L
124-48-1	Dibromochloromethane	10	U	ug/L
127-18-4	Tetrachloroethene	10	U	ug/L
108-90-7	Chlorobenzene	10	U	ug/L
75-25-2	Bromoform	10	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	10	U	ug/L
541-73-1	1,3-Dichlorobenzene	10	U	ug/L
106-46-7	1,4-Dichlorobenzene	10	U	ug/L
95-50-1	1,2-Dichlorobenzene	10	U	ug/L
1634-04-4	tert-Butyl methyl ether	10	U	ug/L
71-43-2	Benzene	10	33	ug/L
108-88-3	Toluene	10	U	ug/L
100-41-4	Ethylbenzene	10	U	ug/L
N/A	Xylenes (Total)	10	69	ug/L

74-97-5	Bromochloromethane-SS	93	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	92	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/16/91
Project: BANG	Lab Sample Id: 89308	Date Received: 01/21/91
Proj No: MGM 27232.UB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/27/91
Matrix: WATER	Instrument ID: GC#2	Analyst: MS
Sampler: HS	Column: J & W DB-1	Date Reported: 01/30/91

Client Sample ID/Description: TRIP BLANK 1 (LMG 17593-08)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	99	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	90	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000062

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/16/91
Project: BANG	Lab Sample Id: 89309	Date Received: 01/21/91
Proj No: MGM 27232.UB.SD	% Moisture: 96.0	Date Extracted: 01/22/91
Method: 8010/20	Dilution Factor: 50000.0	Date Analyzed: 01/24/91
Matrix: SOIL	Instrument ID: GC#2	Analyst: CJ
Sampler: HS	Column: J & W DB-1	Date Reported: 01/25/91

Client Sample ID/Description: D-57 (M,N) (LMG 17593-09)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1,300,000	U	ug/Kg
75-01-4	Vinyl Chloride	1,300,000	U	ug/Kg
74-83-9	Bromomethane	1,300,000	U	ug/Kg
75-00-3	Chloroethane	1,300,000	U	ug/Kg
75-69-4	Trichlorofluoromethane	1,300,000	U	ug/Kg
75-35-4	1,1-Dichloroethene	1,300,000	U	ug/Kg
75-09-2	Dichloromethane	1,300,000	U	ug/Kg
156-60-5	trans-1,2-Dichloroethene	1,300,000	U	ug/Kg
75-34-3	1,1-Dichloroethane	1,300,000	U	ug/Kg
67-66-3	Chloroform	1,300,000	U	ug/Kg
107-06-2	1,2-Dichloroethane	1,300,000	U	ug/Kg
71-55-6	1,1,1-Trichloroethane	1,300,000	U	ug/Kg
56-23-5	Carbon Tetrachloride	1,300,000	U	ug/Kg
78-87-5	1,2-Dichloropropane	1,300,000	U	ug/Kg
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1,300,000	U	ug/Kg
10061-01-5	cis-1,3-Dichloropropene	1,300,000	U	ug/Kg
10061-02-6	trans-1,3-Dichloropropene	1,300,000	U	ug/Kg
79-00-5	1,1,2-Trichloroethane	1,300,000	U	ug/Kg
124-48-1	Dibromochloromethane	1,300,000	U	ug/Kg
127-18-4	Tetrachloroethene	1,300,000	U	ug/Kg
108-90-7	Chlorobenzene	1,300,000	U	ug/Kg
75-25-2	Bromoform	1,300,000	U	ug/Kg
79-34-5	1,1,2,2-Tetrachloroethane	1,300,000	U	ug/Kg
541-73-1	1,3-Dichlorobenzene	1,300,000	U	ug/Kg
106-46-7	1,4-Dichlorobenzene	1,300,000	U	ug/Kg
95-50-1	1,2-Dichlorobenzene	1,300,000	U	ug/Kg
1634-04-4	tert-Butyl methyl ether	1,300,000	U	ug/Kg
71-43-2	Benzene	1,300,000	U	ug/Kg
108-88-3	Toluene	1,300,000	U	ug/Kg
100-41-4	Ethylbenzene	1,300,000	U	ug/Kg
N/A	Xylenes (Total)	1,300,000	1,900,000	ug/Kg

74-97-5	Bromochloromethane-SS	111	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	96	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000063

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/16/91
Project: BANG	Lab Sample ID: 89312	Date Received: 01/21/91
Proj No: MGM 27232.UB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 8010/20	Dilution Factor: 1.0	Date Analyzed: 01/25/91
Matrix: WATER	Instrument ID: GC#2	Analyst: SS
Sampler: HS	Column: J & W DB-1	Date Reported: 01/27/91

Client Sample ID/Description: TRIP BLANK 2 (LMG 17593-12)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	115	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	93	%rec

U = Compound analyzed for but not detected
 SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000064

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/23/91
Project: BANG	Lab Sample Id: 2VB0123AM	Date Received: N/A
Proj No: MGM 27232.UB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 8010/20	Dilution Factor: 1.0	Date Analyzed: 01/23/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: N/A	Column: J & W DB-1	Date Reported: 01/25/91

Client Sample ID/Description: OFW BLANK + MEOH

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	103	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	107	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
 Project: BANG
 Proj No: MGM 27232.UB.SD
 Method: 8010/20
 Matrix: WATER
 Sampler: N/A

Laboratory: GAINESVILLE
 Lab Sample Id: ZVB0125B
 % Moisture: 0.0
 Dilution Factor: 1.0
 Instrument ID: GC#2
 Column: J & W DB-1

Date Sampled: 01/25/91
 Date Received: N/A
 Date Extracted: N/A
 Date Analyzed: 01/25/91
 Analyst: SS
 Date Reported: 01/27/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	106	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	89	%rec

U = Compound analyzed for but not detected
 SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/26/91
Project: BANG	Lab Sample Id: 2VB0126A	Date Received: N/A
Proj No: MGM 27232.UB.SD	% Moisture: 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/26/91
Matrix: WATER	Instrument ID: GC#2	Analyst: CJ
Sampler: N/A	Column: J & W DB-1	Date Reported: 01/31/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethane	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethane	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,1,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	95	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	88	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/27/91
Project: BANG	Lab Sample Id: 2VB0127A	Date Received: N/A
Proj No: MGM 27232.UB.SD	% Moisture 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/27/91
Matrix: WATER	Instrument ID: GC#2	Analyst: MS
Sampler: N/A	Column: J & W DB-1	Date Reported: 01/30/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	92	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	101	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

WATER

0

SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
1	2VB0828AH	8/28/90	81.0	95.0	YES	NO	YES	NO
2	1VB0829A	8/29/90	109.0	94.0	YES	NO	YES	NO
3	2VB0829AH	8/29/90	80.0	93.0	YES	NO	YES	NO
4	1VB0830A	8/30/90	105.0	88.0	YES	NO	YES	NO
5	2VB0830AH	8/30/90	110.0	94.0	YES	NO	YES	NO
6	1VB0831A	8/31/90	102.0	103.0	YES	NO	YES	NO
7	2VB0831AH	8/31/90	95.0	98.0	YES	NO	YES	NO
8	1VB0901B	9/1/90	103.0	92.0	YES	NO	YES	NO
9	2VB0901AH	9/1/90	112.0	92.0	YES	NO	YES	NO
10	1VB0902B	9/2/90	104.0	89.0	YES	NO	YES	NO
11	1VB0903A	9/3/90	97.0	104.0	YES	NO	YES	NO
12	1VB0904A	9/4/90	113.0	92.0	YES	NO	YES	NO
13	2VB0904AH	9/4/90	97.0	95.0	YES	NO	YES	NO
14	1VB0905A	9/5/90	100.0	95.0	YES	NO	YES	NO
15	2VB0905AH	9/5/90	101.0	96.0	YES	NO	YES	NO
16	2VB0906BHM	9/6/90	103.0	101.0	YES	NO	YES	NO
17	1VB0907A	9/7/90	101.0	87.0	YES	NO	YES	NO
18	2VB0907AH	9/7/90	107.0	103.0	YES	NO	YES	NO
19	1VB0908A	9/8/90	94.0	94.0	YES	NO	YES	NO
20	2VB0908AH	9/8/90	96.0	96.0	YES	NO	YES	NO
21	1VB0909A	9/9/90	114.0	100.0	YES	NO	YES	NO
22	1VB0910A	9/10/90	102.0	102.0	YES	NO	YES	NO
23	2VB0910AH	9/10/90	91.0	106.0	YES	NO	YES	NO
24	1VB0911A	9/11/90	98.0	101.0	YES	NO	YES	NO
25	2VB0911AH	9/11/90	93.0	101.0	YES	NO	YES	NO
26	1VB0912B	9/12/90	96.0	95.0	YES	NO	YES	NO
27	2VB0912A	9/12/90	97.0	100.0	YES	NO	YES	NO
28	1VB0913B	9/13/90	111.0	93.0	YES	NO	YES	NO
29	1VB0914B	9/14/90	96.0	104.0	YES	NO	YES	NO
30	2VB0914A	9/14/90	91.0	105.0	YES	NO	YES	NO
31	1VB0915A	9/15/90	101.0	96.0	YES	NO	YES	NO
32	2VB0915B	9/15/90	102.0	101.0	YES	NO	YES	NO
33	1VB0916A	9/16/90	99.0	89.0	YES	NO	YES	NO
34	2VB0916A	9/16/90	90.0	99.0	YES	NO	YES	NO
35	1VB0917A	9/17/90	103.0	97.0	YES	NO	YES	NO
36	2VB0917A	9/17/90	95.0	101.0	YES	NO	YES	NO
37	1VB0918A	9/18/90	103.0	101.0	YES	NO	YES	NO
38	2VB0918A	9/18/90	100.0	94.0	YES	NO	YES	NO
39	2VB0919A	9/19/90	98.0	103.0	YES	NO	YES	NO
40	2VB0920A	9/20/90	100.0	97.0	YES	NO	YES	NO
41	2VB0921A	9/21/90	100.0	96.0	YES	NO	YES	NO
42	2VB0922A	9/22/90	94.0	98.0	YES	NO	YES	NO
43	2VB0923A	9/23/90	93.0	100.0	YES	NO	YES	NO
44	1VB0923AH	9/23/90	100.0	103.0	YES	NO	YES	NO
45	1VB0924A	9/24/90	100.0	101.0	YES	NO	YES	NO
46	2VB0924A	9/24/90	94.0	102.0	YES	NO	YES	NO
47	1VB0925AH	9/25/90	100.0	101.0	YES	NO	YES	NO
48	2VB0925A	9/25/90	89.0	101.0	YES	NO	YES	NO
49	1VB0926A	9/26/90	100.0	98.0	YES	NO	YES	NO
50	2VB0926A	9/26/90	100.0	102.0	YES	NO	YES	NO
51	2VB0927A	9/27/90	99.0	99.0	YES	NO	YES	NO
52	2VB0928A	9/28/90	102.0	99.0	YES	NO	YES	NO
53	2VB0929A	9/29/90	95.0	98.0	YES	NO	YES	NO
54	2VB0930A	9/30/90	100.0	95.0	YES	NO	YES	NO

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CHM HILL

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55	2VB1001A	10/01/90	91.0	100.0	YES	NO	YES	NO
56	2VB1002A	10/02/90	96.0	100.0	YES	NO	YES	NO
57	1VB1003B	10/03/90	114.0	100.0	YES	NO	YES	NO
58	2VB1003A	10/03/90	88.0	100.0	YES	NO	YES	NO
59	1VB1004A	10/04/90	121.0	102.0	YES	NO	YES	NO
60	2VB1004A	10/04/90	88.0	94.0	YES	NO	YES	NO
61	1VB1005A	10/05/90	116.0	106.0	YES	NO	YES	NO
62	2VB1005A	10/05/90	95.0	95.0	YES	NO	YES	NO
63	2VB1006A	10/06/90	98.0	98.0	YES	NO	YES	NO
64	2VB1007A	10/07/90	94.0	95.0	YES	NO	YES	NO
65	1VB1008A	10/08/90	92.0	102.0	YES	NO	YES	NO
66	1VB1009A	10/09/90	118.0	89.0	YES	NO	YES	NO
67	2VB1009A	10/09/90	99.0	100.0	YES	NO	YES	NO
68	2VB1010A	10/10/90	94.0	101.0	YES	NO	YES	NO
69	2VB1011A	10/11/90	97.0	94.0	YES	NO	YES	NO
70	2VB1013A	10/13/90	98.0	97.0	YES	NO	YES	NO
71	2VB1014B	10/14/90	90.0	96.0	YES	NO	YES	NO

WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
72	2VB1015A	10/15/90	86.0	94.0	YES	NO	YES	NO
73	2VB1016A	10/16/90	95.0	97.0	YES	NO	YES	NO
74	2VB1019A	10/19/90	96.0	94.0	YES	NO	YES	NO
75	2VB1020A	10/20/90	94.0	100.0	YES	NO	YES	NO
76	2VB1021A	10/21/90	82.0	94.0	YES	NO	YES	NO
77	1VB1022A	10/22/90	114.0	94.0	YES	NO	YES	NO
78	2VB1022B	10/22/90	93.0	95.0	YES	NO	YES	NO
79	1VB1023A	10/23/90	102.0	95.0	YES	NO	YES	NO
80	2VB1023A	10/23/90	92.0	94.0	YES	NO	YES	NO
81	1VB1024A	10/24/90	99.0	94.0	YES	NO	YES	NO
82	2VB1024A	10/24/90	88.0	103.0	YES	NO	YES	NO
83	1VB1025A	10/25/90	97.0	92.0	YES	NO	YES	NO
84	2VB1025A	10/25/90	94.0	92.0	YES	NO	YES	NO
85	1VB1026A	10/26/90	96.0	87.0	YES	NO	YES	NO
86	2VB1026A	10/26/90	84.0	103.0	YES	NO	YES	NO
87	1VB1027A	10/27/90	99.0	88.0	YES	NO	YES	NO
88	2VB1027A	10/27/90	95.0	95.0	YES	NO	YES	NO
89	1VB1030A	10/30/90	105.0	89.0	YES	NO	YES	NO
90	2VB1030A	10/30/90	97.0	101.0	YES	NO	YES	NO
91	1VB1031A	10/31/90	100.0	93.0	YES	NO	YES	NO
92	2VB1031A	10/31/90	98.0	96.0	YES	NO	YES	NO
93	1VB1101A	11/01/90	102.0	99.0	YES	NO	YES	NO
94	2VB1101A	11/01/90	94.0	91.0	YES	NO	YES	NO
95	1VB1102A	11/02/90	110.0	92.0	YES	NO	YES	NO
96	2VB1102A	11/02/90	86.0	94.0	YES	NO	YES	NO
97	1VB1103B	11/03/90	111.0	96.0	YES	NO	YES	NO
98	2VB1103A	11/03/90	88.0	96.0	YES	NO	YES	NO
99	2VB1104A	11/04/90	98.0	104.0	YES	NO	YES	NO
100	2VB1105A	11/05/90	95.0	98.0	YES	NO	YES	NO
101	1VB1106A	11/06/90	98.0	101.0	YES	NO	YES	NO
102	2VB1106A	11/06/90	94.0	100.0	YES	NO	YES	NO
103	1VB1109A	11/09/90	108.0	99.0	YES	NO	YES	NO

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CHM HILL

104	2VB1109A	11/09/90	103.0	98.0	YES	NO	YES	NO
105	2VB1110A	11/10/90	97.0	102.0	YES	NO	YES	NO
106	1VB1111A	11/11/90	118.0	110.0	YES	NO	YES	NO
107	1VB1112A	11/12/90	87.0	102.0	YES	NO	YES	NO
108	2VB1112B	11/12/90	104.0	98.0	YES	NO	YES	NO
109	1VB1113A	11/13/90	81.0	102.0	YES	NO	YES	NO
110	2VB1113A	11/13/90	105.0	100.0	YES	NO	YES	NO
111	1VB1114A	11/14/90	99.0	104.0	YES	NO	YES	NO
112	2VB1114A	11/14/90	103.0	100.0	YES	NO	YES	NO
113	1VB1115A	11/15/90	82.0	97.0	YES	NO	YES	NO
114	2VB1115A	11/15/90	102.0	96.0	YES	NO	YES	NO
115	1VB1116A	11/16/90	108.0	104.0	YES	NO	YES	NO
116	2VB1116A	11/16/90	89.0	103.0	YES	NO	YES	NO
117	1VB1117A	11/17/90	102.0	96.0	YES	NO	YES	NO
118	1VB1118A	11/18/90	111.0	98.0	YES	NO	YES	NO
119	1VB1119B	11/19/90	108.0	98.0	YES	NO	YES	NO
120	2VB1120A	11/20/90	102.0	108.0	YES	NO	YES	NO
121	2VB1122A	11/22/90	93.0	93.0	YES	NO	YES	NO
122	2VB1123A	11/23/90	82.0	93.0	YES	NO	YES	NO
123	2VB1125A	11/25/90	96.0	96.0	YES	NO	YES	NO
124	2VB1126A	11/26/90	104.0	86.0	YES	NO	YES	NO
125	2VB1127A	11/27/90	104.0	95.0	YES	NO	YES	NO
126	2VB1129A	11/29/90	101.0	101.0	YES	NO	YES	NO
127	2VB1201A	12/01/90	107.0	88.0	YES	NO	YES	NO
128	2VB1206A	12/06/90	106.0	103.0	YES	NO	YES	NO
129	2VB1211B	12/11/90	87.0	95.0	YES	NO	YES	NO
130	2VB1212A	12/12/90	92.0	102.0	YES	NO	YES	NO
131	2VB1214A	12/14/90	100.0	102.0	YES	NO	YES	NO
132	2VB1215A	12/15/90	103.0	99.0	YES	NO	YES	NO
133	1VB1217A	12/17/90	96.0	105.0	YES	NO	YES	NO
134	2VB1217A	12/17/90	93.0	101.0	YES	NO	YES	NO
135	1VB1218A	12/18/90	83.0	99.0	YES	NO	YES	NO
136	2VB1218A	12/18/90	103.0	103.0	YES	NO	YES	NO
137	1VB1219A	12/19/90	110.0	99.0	YES	NO	YES	NO
138	2VB1219A	12/19/90	93.0	100.0	YES	NO	YES	NO
139	1VB1220A	12/20/90	98.0	93.0	YES	NO	YES	NO
140	2VB1220A	12/20/90	84.0	99.0	YES	NO	YES	NO
141	1VB1221A	12/21/90	98.0	94.0	YES	NO	YES	NO
142	2VB1221A	12/21/90	112.0	98.0	YES	NO	YES	NO

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WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
143	1VB1222A	12/22/90	97.0	94.0	YES	NO	YES	NO
144	2VB1222A	12/22/90	100.0	102.0	YES	NO	YES	NO
145	1VB1223A	12/23/90	92.0	91.0	YES	NO	YES	NO
146	2VB1223A	12/23/90	90.0	98.0	YES	NO	YES	NO
147	2VB1226A	12/26/90	100.0	94.0	YES	NO	YES	NO
148	2VB1227A	12/27/90	98.0	96.0	YES	NO	YES	NO
149	2VB1228A	12/28/90	102.0	98.0	YES	NO	YES	NO
150	2VB1229A	12/29/90	116.0	101.0	YES	NO	YES	NO
151	1VB1230A	12/30/90	94.0	89.0	YES	NO	YES	NO
152	2VB1230A	12/30/90	103.0	97.0	YES	NO	YES	NO

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153	2VB1231A	12/31/90	110.0	101.0	YES	NO	YES	NO
154	2VB0102A	01/02/91	95.0	99.0	YES	NO	YES	NO
155	2VB0103A	01/03/91	98.0	87.0	YES	NO	YES	NO
156	2VB0104B	01/04/91	99.0	99.0	YES	NO	YES	NO
157	2VB0105A	01/05/91	107.0	97.0	YES	NO	YES	NO
158	2VB0106A	01/06/91	94.0	95.0	YES	NO	YES	NO
159	2VB0107A	01/07/91	102.0	97.0	YES	NO	YES	NO
160	2VB0109B	01/09/91	110.0	106.0	YES	NO	YES	NO
161	2VB0111A	01/11/91	100.0	84.0	YES	NO	NO	NO
162	2VB1112A	01/12/91	84.0	95.0	YES	NO	YES	NO
163	2VB0113A	01/13/91	96.0	96.0	YES	NO	YES	NO
164	2VB0114A	01/14/90	96.0	98.0	YES	NO	YES	NO
165	2VB0115A	01/15/91	115.0	97.0	YES	NO	YES	NO
166	2VB0116A	01/16/91	94.0	91.0	YES	NO	YES	NO
167	2VB0117A	01/17/91	114.0	96.0	YES	NO	YES	NO
168	2VB0118A	01/18/91	100.0	92.0	YES	NO	YES	NO
169	2VB0119A	01/19/91	102.0	95.0	YES	NO	YES	NO
170	2VB0120A	01/20/91	100.0	95.0	YES	NO	YES	NO
171	2VB0121A	01/21/91	100.0	87.0	YES	NO	YES	NO
172	2VB0122A	01/22/91	104.0	93.0	YES	NO	YES	NO
173	1VB0123A	01/23/91	107.0	89.0	YES	NO	YES	NO
174	2VB0123AM	01/23/91	103.0	107.0	YES	NO	YES	NO
175	1VB0124A	01/24/91	98.0	87.0	YES	NO	YES	NO
176	2VB0124A	01/24/91	96.0	89.0	YES	NO	YES	NO
177	1VB0125A	01/25/91	104.0	89.0	YES	NO	YES	NO
178	2VB0125A	01/25/91	105.0	89.0	YES	NO	YES	NO
179	2VB0125B	01/25/91	106.0	89.0	YES	NO	YES	NO
180	1VB0126A	01/26/91	115.0	92.0	YES	NO	YES	NO
181	2VB0126A	01/26/91	95.0	88.0	YES	NO	YES	NO
182	1VB0127A	01/27/91	84.0	86.0	YES	NO	YES	NO
183	2VB0127A	01/27/91	101.0	92.0	YES	NO	YES	NO
184	1VB0128A	01/28/91	89.0	92.0	YES	NO	YES	NO
185	2VB0128A	01/28/91	107.0	93.0	YES	NO	YES	NO
186	1VB0130A	01/30/91	99.0	103.0	YES	NO	YES	NO
187	1VB0131A	01/31/91	121.0	102.0	YES	NO	YES	NO
188	2VB0131AM	01/31/91	89.0	100.0	YES	NO	YES	NO
189	2VB0201A	02/01/91	96.0	92.0	YES	NO	YES	NO
190	2VB0203A	02/03/91	101.0	97.0	NO	NO	YES	NO
191	2VB0204A	02/04/91	90.0	93.0	YES	NO	YES	NO
192	1VB0205A	02/05/91	74.0	105.0	YES	NO	YES	NO
193	2VB0205A	02/05/91	98.0	92.0	NO	NO	YES	NO
194	2VB0207A	02/07/91	95.0	95.0				
195	1VB0207B	02/07/91	74.0	88.0				
196					NO	NO	YES	NO
197								
198								
199								
200								

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ACCEPTANCE R1VB0828B	8/28/90	102.0	90.0	YES	NO	3	NO
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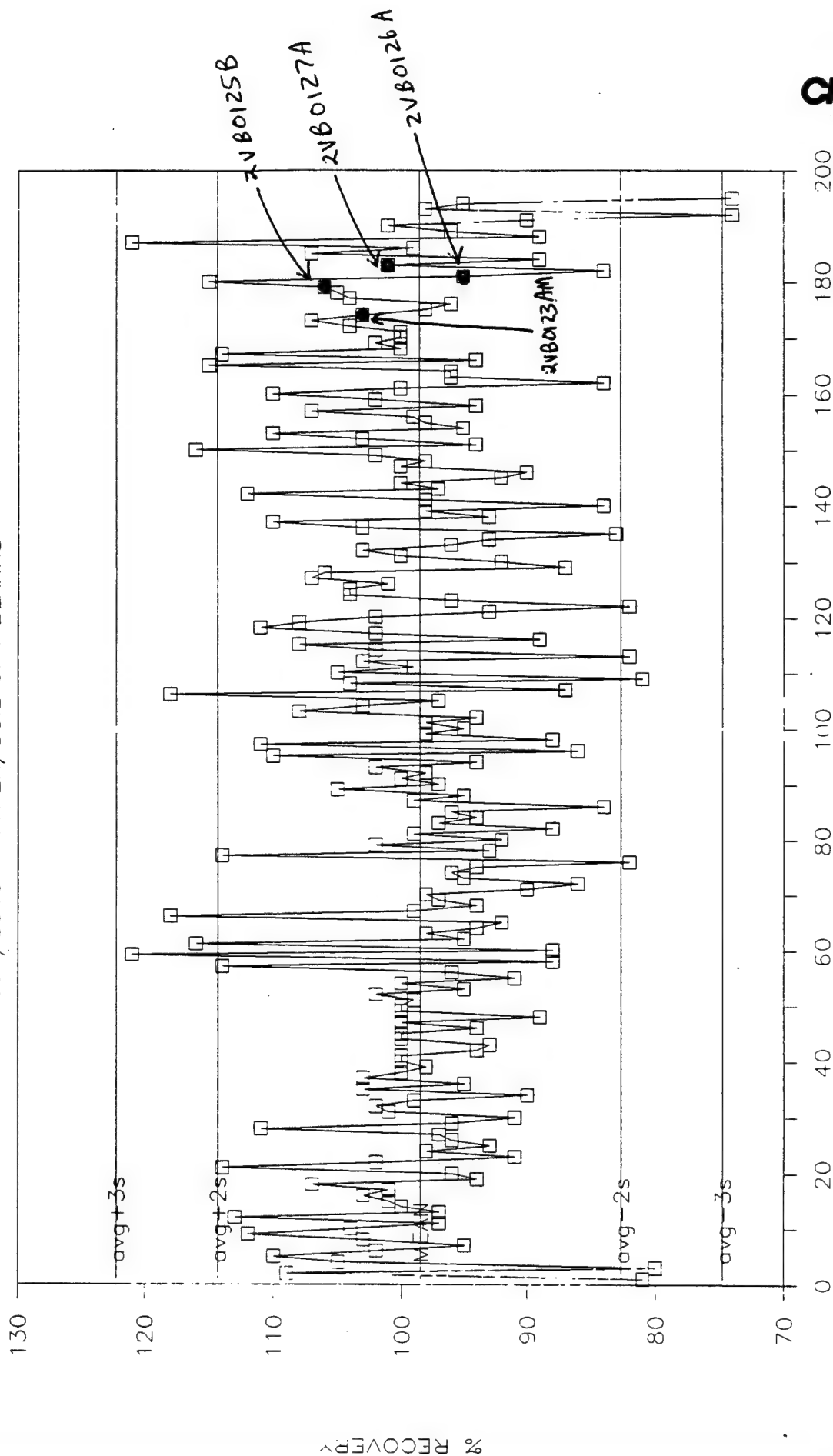
WATER:

601	602
MEAN = 98.50	MEAN = 97.37
STD.DEV. = 1.92	STD.DEV. = 1.42
MEAN MEAN	MEAN MEAN
- +	- +
2 s 82.7 114.3	2 s 88.5 106.2
3 s 74.7 122.3	3 s 84.1 110.7

000072

SURROGATE RECOVERY

601/8010 - WATER/SOIL OFW BLANKS

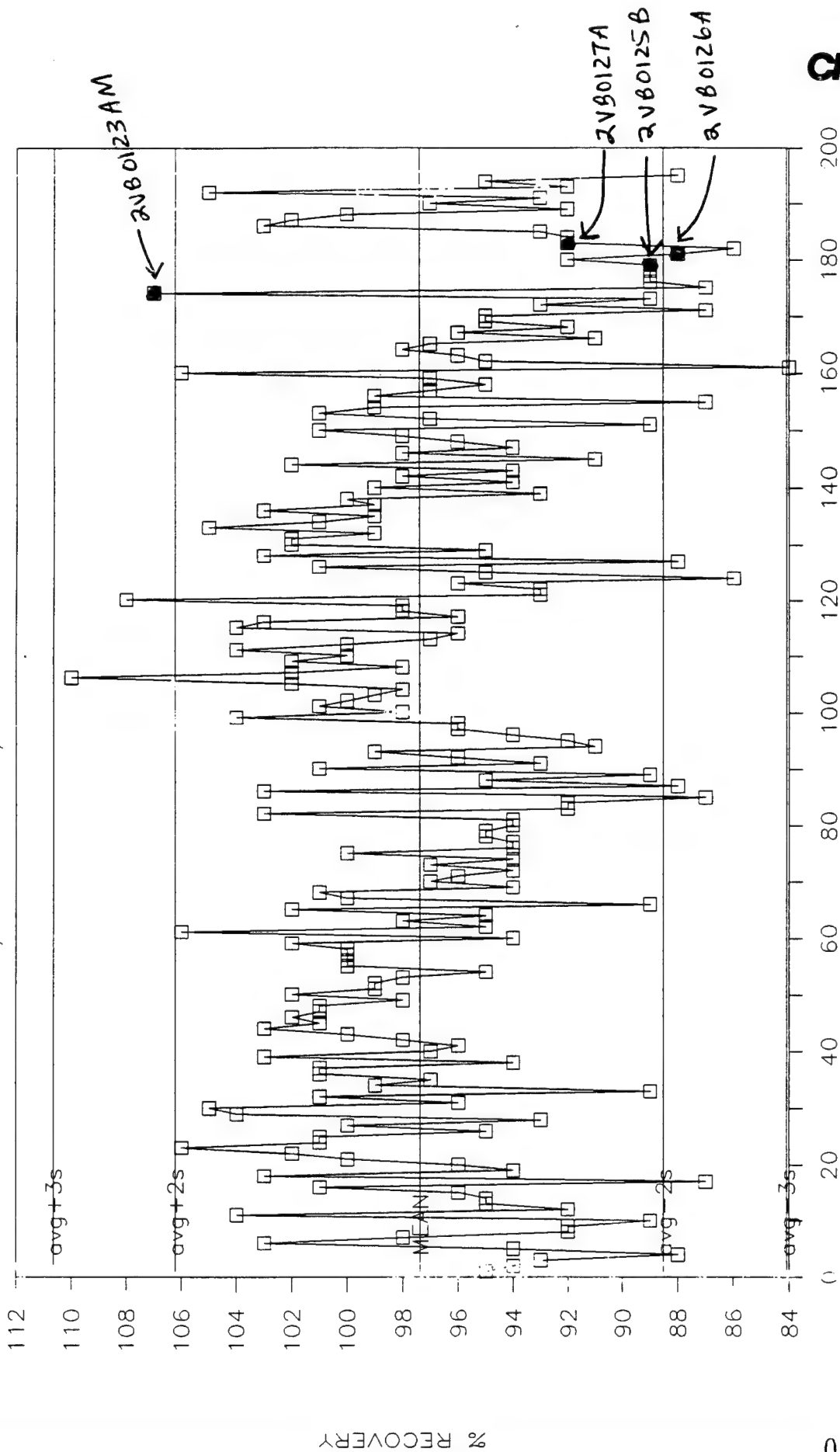


CHM HILL

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SURROGATE RECOVERY

602/8020 - WATER/SOIL OFW BLANKS



CHM HILL

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CHAM HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER MGM27232.08.50		PROJECT NAME BANG		CLIENT ADDRESS AND PHONE NUMBER		FOR LAB USE ONLY	
CLIENT NAME HAZWRAP-CHAM HILL / MGM		PROJECT MANAGER J.P. Martin		ANALYSES REQUESTED		LAB# 17593	
REQUESTED COMP. DATE normal		COPY TO: C. H. Wisniewski H. Saitan		# OF CONTAINERS		LAB#	
SAMPLING REQUIREMENTS SDWA <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input type="checkbox"/>		SAMPLE DESCRIPTIONS (12 CHARACTERS)		DATE/TIME		PROJECT NO. MGM 27232.08.50	
STA NO.	DATE	TIME	CGS O M A I P B L	RELINQUISHED BY	DATE/TIME	ACK 1/21/91 VERIFIED 1/21/91 JHS	
	1/16/91	10am		AS Saitan	1/16/91 5pm	QUOTE# BS 1/21/91 JHS	
				RELINQUISHED BY:	DATE/TIME	NO. OF SAMP PG 1 OF 2	
				RELINQUISHED BY:	DATE/TIME	REMARKS HAZWRAP (E)	
				RELINQUISHED BY:	DATE/TIME	ANALYSIS 601/602 + 8010/8020	
				RELINQUISHED BY:	DATE/TIME	OC LEVEL 1H DATE DUE 2/5/91	
				RELINQUISHED BY:	DATE/TIME	REPORT TO E. RAMUCHAKUNG	
				RELINQUISHED BY:	DATE/TIME	SHIP# 5851263	
				RELINQUISHED BY:	DATE/TIME	per J.P. Martin / MGM	
				RELINQUISHED BY:	DATE/TIME	do not analyze all	
				RELINQUISHED BY:	DATE/TIME	Samples - analyze only	
				RELINQUISHED BY:	DATE/TIME	D-12, D-12 Dup, D-34	
				RELINQUISHED BY:	DATE/TIME	and D-57 (solid phase)	
				RELINQUISHED BY:	DATE/TIME	Others "on hold" (sig 1/17/91)	
				RELINQUISHED BY:	DATE/TIME	HAZWRAP/NEESA @ N	
				RELINQUISHED BY:	DATE/TIME	OC LEVEL 2 3 1H	
				RELINQUISHED BY:	DATE/TIME	COC YES ICE YES	
				RELINQUISHED BY:	DATE/TIME	ANA REQ YES TEMP OC	
				RELINQUISHED BY:	DATE/TIME	CUST SEAL NO PHASE 2	
				RELINQUISHED BY:	DATE/TIME	SAMPLE COND. better than 26	
RECEIVED BY LAB: E. Kuthan		DATE/TIME 1-16-91		SAMPLE SHIPPED VIA UPS BUS FED-EX HAND OTHER		AIR BILL#	
REMARKS ANALYZE D-12, D-12 Dup, D-34, D-57 (solid phase), TB1, TB2, and LCS and BLANK (1/17/91)						ENTERED INTO LIMS 1/17/91	
						COC REVIEWED 1/17/91	

CHAIN OF CUSTODY RECORD

[illegible]

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February 15, 1991

MGM27232.UB.SD

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham Air National Guard,
LMG Laboratory No. 17634

Dear Mr. Martin:

On January 23, 1991, the CH2M HILL Montgomery Laboratory received two samples with a request for analysis of selected organic and inorganic parameters.

The analytical results and associated quality control data are enclosed. The Purgeable Halocarbons/Aromatics analysis was performed at our Gainesville, Florida laboratory. A copy of their report is enclosed.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,

Wanda L. Hall

Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom/LMG

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ANALYTICAL METHODOLOGY

Organic Analysis

Priority Pollutants: Water, soil and waste samples are analyzed in accordance with procedures described in Methods 608, 624, and 625, EPA-600/4-82-057 (1982); Methods 8080, 8240, and 8270, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition; and methods outlined in the USEPA Contract Laboratory Program Statement of Work for Organics Analysis, February, 1988.

Volatile Analysis (Safe Drinking Water Act): Water samples are analyzed in accordance with procedures described in Method 524.2, Federal Register (50 FR 46902), November 13, 1985.

Chlorinated Phenoxyacid Herbicides: Samples are analyzed with procedures described in Method 8150, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Organophosphate Pesticides: Samples are analyzed in accordance with procedures described in Methods 614 and 622, EPA-600/4-79-019 (1979) and in Method 8140, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Phenol Analysis by GC: Samples are analyzed in accordance with procedures outlined in Method 604, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8040, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Polynuclear Aromatic Hydrocarbons (GC analysis): Samples are analyzed with procedures described in Method 610, Federal Register, 40 CFR, Part 136 (July 1, 1987) and in Method 8100, Test Methods for Evaluating Solid Waste, 1986, SW-846, Third Edition.

Ethylene Dibromide : Water samples are analyzed in accordance with procedures outlined in Method 504, Federal Register (50 FR 46902), November 13, 1985.

Trihalomethanes: Water samples are analyzed with procedures described in Method 501.2, Federal Register, Vol. 44, No. 231, Part II, November 29, 1979.

EPA - DEFINED QUALIFIERS

ORGANICS

Definitions for the EPA-defined qualifiers:

- U -- Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the quantitation limit for that compound. The detection limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.

- J -- Indicates an estimated value. This flag is used when the mass spectral data indicates the presence of a compound below the stated quantitation limit. The "J" qualifier is not used with pesticide results.

- C -- This flag applies to pesticide results only. The "C" flag indicates the presence of this compound has been confirmed by GC/MS analysis.

- B -- This flag is used when the analyte is found in the associated blank as well as the sample. This notation indicates possible blank contamination and suggests the data user evaluate these compounds and their amounts carefully.

- E -- This flag applies to GC/MS only. The "E" qualifier indicates a compound may be above or below the linear range of the instrument. If the particular compound level is deemed above the linear calibration range, then the sample should be reanalyzed at an appropriate dilution. Therefore, the "E" qualified amount is an estimated concentration. The results for the dilution will be reported on a separate Form I and will be flagged with a "D" if the dilution brings the concentration within proper calibration.

- D -- This flag identifies compounds which have been run at a dilution to bring the concentration of that compound within the linear range of the instrument. "D" qualifiers are only used for samples that have been run initially with results above acceptable ranges. For secondary dilutions the "DL" suffix is appended to the sample number on the Form I.

- A -- Indicates the Tentatively Identified Compound (TIC) is a suspected aldol-condensation product.

- X -- Indicates the compound concentration has been manually modified or the EPA qualifier has been manually modified or added.

- JX -- The compound was detected and quantitated below the Contract Required Quantitation Limit.

CLIENT SAMPLE ID QUALIFIERS

LEVEL 1

The qualifiers that GC/MS uses with the client sample ID are defined below:

- DL -- Dilution Run
- R -- Rerun (may be followed by a digit to indicate multiple reruns)
- RD -- Diluted Rerun
- RX -- Re-extraction Analysis
- MS -- Matrix Spike (may be followed by a digit to indicate multiple matrix spikes within a sample set)
- MSD -- Matrix Spike Duplicate (may be followed by a digit to indicate multiple matrix spike duplicates within a sample set)
- QC_BLANK -- Method Blank (may be followed by an S for soils run at a low level, W for waters, or SM for soils run at a medium level) (letters may be followed by a digit to indicate multiple blanks of that type; if there are no letters the digit indicates multiple blanks).

These qualifiers allow GC/MS to have unique client sample ID's so that the client can get more accurate information from the data reported.

TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 17634

CH2M HILL Sample No.	Sample Description			
17634001	SAMPLE D-62	01/22/91	1400	GRAB
17634002	SAMPLE TRIP BLANK			



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: D-62 1400 GRAB

Laboratory Sample Number: 17634001 Date Collected: 01/22/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
Bromomethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
Vinyl chloride	EPA601/602(MOD)	50	U	ug/L	02/03/91
Chloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
Dichloromethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
Trichlorofluoromethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,1-Dichloroethene	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,1-Dichloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Chloroform	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,2-Dichloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,1,1-Trichloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
Carbon tetrachloride	EPA601/602(MOD)	50	U	ug/L	02/03/91
Bromodichloromethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,2-Dichloropropane	EPA601/602(MOD)	50	U	ug/L	02/03/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Trichloroethene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Dibromochloromethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,1,2-Trichloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Bromoform	EPA601/602(MOD)	50	U	ug/L	02/03/91
Tetrachloroethene	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	50	U	ug/L	02/03/91
tert-Butyl methyl ether	EPA601/602(MOD)	50	U	ug/L	02/03/91
Benzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Toluene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Chlorobenzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Ethylbenzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Total Xylenes	EPA601/602(MOD)	50	220	ug/L	02/03/91
1,3-Dichlorobenzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,4-Dichlorobenzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
1,2-Dichlorobenzene	EPA601/602(MOD)	50	U	ug/L	02/03/91
Bromochloromethane - SS	EPA601/602(MOD)	----	103	%rec	02/03/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	94	%rec	02/03/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000001



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: D-62 1400 GRAB

Laboratory Sample Number: 17634001

Date Collected: 01/22/91

Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	02/03/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	02/03/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000002



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: TRIP BLANK

Laboratory Sample Number: 17634002 Date Collected: 01/22/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/31/91
Bromochloromethane - SS	EPA601/602(MOD)	----	97	%rec	01/31/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	99	%rec	01/31/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: INRPRPT(v910124)
000003



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: TRIP BLANK
Laboratory Sample Number: 17634002 Date Collected: 01/22/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/31/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/31/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000004

REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17634ZW1 Date Collected: 01/23/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	01/30/91
Bromochloromethane - SS	EPA601/602(MOD)	----	99	%rec	01/30/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	103	%rec	01/30/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000005
205.271 1444



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17634ZW1

Date Collected: 01/23/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	01/30/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	01/30/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by:

INRPRPT(v910124)

000006



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17634ZW2 Date Collected: 01/23/91 Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Chloromethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Bromomethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Vinyl chloride	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Chloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Dichloromethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Trichlorofluoromethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,1-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,1-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
trans-1,2-Dichloroethene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Chloroform	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,2-Dichloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,1,1-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Carbon tetrachloride	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Bromodichloromethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,2-Dichloropropane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
cis-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Trichloroethene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Dibromochloromethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,1,2-Trichloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
trans-1,3-Dichloropropene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Bromoform	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Tetrachloroethene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,1,2,2-Tetrachloroethane	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
tert-Butyl methyl ether	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Benzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Toluene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Chlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Ethylbenzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Total Xylenes	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,3-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,4-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
1,2-Dichlorobenzene	EPA601/602(MOD)	1.0	U	ug/L	02/03/91
Bromochloromethane - SS	EPA601/602(MOD)	----	101	%rec	02/03/91
a,a,a-Trifluorotoluene - SS	EPA601/602(MOD)	----	97	%rec	02/03/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000007



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17634ZW2

Date Collected: 01/23/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
1,4-Dichlorobutane - SS	EPA601/602(MOD)	----	NR	%rec	02/03/91
Fluorobenzene - SS	EPA601/602(MOD)	----	NR	%rec	02/03/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

COMMENT: NR = NOT REPORTED.

Reviewed by: 

INRPRPT(v910124)

000008

CASE NARRATIVE FOR PNA
GAS CHROMATOGRAPHY SAMPLES

LABORATORY: CH2M HILL LABORATORIES

CLIENT: BANG

CASE NO. : N/A

CONTRACT NO.: N/A

LAB NO. : 17634

SDG NO.: N/A

I. RECEIPT

A. DATE : January 23, 1991

B. SAMPLE INFORMATION

<u>LAB ID</u>	<u>CLIENT ID</u>	<u>SAMPLE MATRIX</u>	<u>DATE SAMPLED</u>	<u>EXTRACTION DATE</u>	<u>ANALYSIS DATE</u>
17634001	D-62	WATER	01/22/91	01/23/91	01/26/91
C01231B1	QC BLANK	WATER	NA	01/23/91	01/26/91

C. Documentation

Exceptions : No exceptions were encountered.

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II. EXTRACTION

- A. Holding Times: All holding times were met.
- B. Extraction
Exceptions : No exceptions were encountered.

III. ANALYSIS

- A. Holding Times: All holding times were met.
- B. Analytical
Exceptions : Lower PNA detection limits could not be achieved for sample 17634001 (D-62) due to hydrocarbon interferences not removed by our silica gel column cleanup efforts.
- No additional exceptions were encountered.

IV. QUALITY CONTROL

- A. Method Blank : All associated method blanks met acceptable QC criteria.
- B. Surrogate
Recoveries : The surrogate recovery for sample 17634001 (D-62) could not be determined due to the dilution required for analysis.
- C. Matrix Spike
Results : Matrix spike results have not been reported with this contract.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.

for Wanda L. Hall
Herb Kelly
Manager, Organic Division

2/15/91
Date



ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM Concentration: LOW Date Extracted: 01/23/91
Lab Sample ID: 17634001 Sample Matrix: WATER Date Analyzed: 01/26/91
Client Sample ID: D-62 Percent Moisture: _____ Dilution Factor: 1000.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	6000 U		
91-57-6	2-Methylnaphthalene . . .	22000		
90-12-0	1-Methylnaphthalene . . .	7900		
208-96-8	Acenaphthylene	2000 U		
83-32-9	Acenaphthene	2000 U		
86-73-7	Fluorene.	2000 U		
85-01-8	Phenanthrene.	4000 U		
120-12-7	Anthracene.	2000 U		
206-44-0	Fluoranthene.	2000 U		
129-00-0	Pyrene.	2000 U		
56-55-3	Benzo(a)anthracene. . . .	2000 U		
218-01-9	Chrysene.	2000 U		
205-99-2	Benzo(b)fluoranthene . .	2000 U		
207-08-9	Benzo(k)fluoranthene . .	2000 U		
50-32-8	Benzo(a)pyrene.	2000 U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	2000 U		
53-70-3	Dibenzo(a,h)anthracene. .	2000 U		
191-24-2	Benzo(g,h,i)perylene. . .	2000 U		
	Terphenyl-d14 - SS	0		

U - Analyzed for but not detected.
B - Detected in QC blank.
JX - Detected, concentration estimated.
SS - Surrogate Standard reported as percent recovery.

Comments: The extract was diluted due to chemical interferences which were not removed during the cleanup procedure. The detection limits of naphthalene and phenanthracene were raised for the same reason. No surrogate was recovered due to the dilution factor.

Form I

ORGANICS ANALYSIS DATA SHEET

Laboratory Name: CH2M HILL/MGM
 Lab Sample ID: C01231B1
 Client Sample ID: QC BLANK

Concentration: LOW
 Sample Matrix: WATER
 Percent Moisture:

Date Extracted: 01/23/91
 Date Analyzed: 01/26/91
 Dilution Factor: 1.0

PNA COMPOUNDS

CAS Number		ug/L	CAS Number	ug/L
91-20-3	Naphthalene	2 U		
91-57-6	2-Methylnaphthalene . . .	2 U		
90-12-0	1-Methylnaphthalene . . .	2 U		
208-96-8	Acenaphthylene	2 U		
83-32-9	Acenaphthene	2 U		
86-73-7	Fluorene.	2 U		
85-01-8	Phenanthrene.	2 U		
120-12-7	Anthracene.	2 U		
206-44-0	Fluoranthene.	2 U		
129-00-0	Pyrene.	2 U		
56-55-3	Benzo(a)anthracene. . . .	2 U		
218-01-9	Chrysene.	2 U		
205-99-2	Benzo(b)fluoranthene . .	2 U		
207-08-9	Benzo(k)fluoranthene . .	2 U		
50-32-8	Benzo(a)pyrene.	2 U		
193-39-5	Indeno(1,2,3-cd)pyrene. .	2 U		
53-70-3	Dibenzo(a,h)anthracene. .	2 U		
191-24-2	Benzo(g,h,i)perylene. . .	2 U		
Terphenyl-d14 - SS 119				

- U - Analyzed for but not detected.
- B - Detected in QC blank.
- JX - Detected, concentration estimated.
- SS - Surrogate Standard reported as percent recovery.

Comments:

Form I

ms

000012

RELATIVE RESPONSE FACTORS

COMPOUND	LEVEL 1 40 ppm	LEVEL 2 30 ppm	LEVEL 3 20 ppm	LEVEL 4 10 ppm	LEVEL 5 2 ppm	MEAN	RSD	COMPOUND
#I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 1
#2,3-BENZOFURAN	0.657764	0.614560	0.575355	0.542839	0.563471	0.5908	7.7%	#2,3-BENZOFURAN
2,3-BENZOFURAN	0.722422	0.686593	0.643544	0.623493	0.646110	0.6644	6.0%	2,3-BENZOFURAN
I.S. 1	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 1
#NAPHTHALENE	1.103834	1.097440	0.956063	0.932835	0.938658	1.0058	8.7%	#NAPHTHALENE
#2-METHYLNAPHTHALE	1.126356	1.143455	1.004466	1.009805	1.020245	1.0609	6.4%	#2-METHYLNAPHTHALE
#1-METHYLNAPHTHALE	1.059085	1.080122	0.977524	0.978504	1.010199	1.0211	4.6%	#1-METHYLNAPHTHALE
NAPHTHALENE	0.918473	0.939021	0.847078	0.849307	0.838226	0.8784	5.3%	NAPHTHALENE
#I.S. 2	1.042108	1.020315	1.103782	1.074129	1.075912	1.0632	3.1%	#I.S. 2
#I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 3
2-METHYLNAPHTHALE	0.972589	0.977784	0.891510	0.911757	0.940537	0.9388	4.0%	2-METHYLNAPHTHALE
1-METHYLNAPHTHALE	0.946214	0.961942	0.866259	0.903773	0.924863	0.9206	4.1%	1-METHYLNAPHTHALE
#ACENAPHTHYLENE	0.581821	0.621531	0.643068	0.626671	0.592315	0.6131	4.1%	#ACENAPHTHYLENE
#ACENAPHTHENE	0.530167	0.565748	0.599929	0.588292	0.569438	0.5707	4.7%	#ACENAPHTHENE
I.S. 2	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 2
#FLUORENE	0.523391	0.558260	0.586351	0.579246	0.570618	0.5636	4.4%	#FLUORENE
ACENAPHTHYLENE	0.900520	0.910383	0.853264	0.846870	0.872686	0.8767	3.2%	ACENAPHTHYLENE
ACENAPHTHENE	0.819254	0.837017	0.797434	0.796121	0.745107	0.7990	4.3%	ACENAPHTHENE
FLUORENE	0.830045	0.856964	0.807842	0.828215	0.851958	0.8350	2.4%	FLUORENE
I.S. 3	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 3
#PHENANTHRENE	0.485105	0.521728	0.540406	0.541450	0.565408	0.5308	5.6%	#PHENANTHRENE
#ANTHRACENE	0.474181	0.510269	0.544465	0.547471	0.572022	0.5297	7.2%	#ANTHRACENE
#I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 4
PHENANTHRENE	0.512455	0.534161	0.528176	0.529237	0.528046	0.5264	1.6%	PHENANTHRENE
ANTHRACENE	0.512922	0.534399	0.529196	0.527044	0.465621	0.5138	5.5%	ANTHRACENE
#FLUORANTHENE	0.447205	0.480133	0.503503	0.507970	0.505495	0.4889	5.3%	#FLUORANTHENE
I.S. 4	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 4
#PYRENE	0.440412	0.467344	0.485696	0.486807	0.493632	0.4748	4.5%	#PYRENE
#TERPHENYL-d14	0.505039	0.536004	0.552178	0.565243	0.565601	0.5448	4.6%	#TERPHENYL-d14
FLUORANTHENE	0.471558	0.482432	0.481897	0.472096	0.428238	0.4672	4.8%	FLUORANTHENE
#I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 5
PYRENE	0.463225	0.477567	0.481809	0.484458	0.490833	0.4796	2.2%	PYRENE
TERPHENYL-d14	0.515651	0.531604	0.536432	0.539532	0.536028	0.5318	1.8%	TERPHENYL-d14
#BENZO(A)ANTHRACENE	0.928145	0.982206	1.027677	1.045165	1.066790	1.0100	5.5%	#BENZO(A)ANTHRACENE
#CHRYSENE	0.948385	0.999003	1.038127	1.050644	1.031060	1.0134	4.1%	#CHRYSENE
I.S. 5	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 5
BENZO(A)ANTHRACENE	0.955965	0.976459	0.970303	0.973406	0.993869	0.9740	1.4%	BENZO(A)ANTHRACENE
CHRYSENE	0.964907	0.990228	0.984619	0.987967	0.988188	0.9832	1.1%	CHRYSENE
#BENZO(B)FLUORANTH	0.891987	0.938529	0.951858	0.976774	1.011299	0.9541	4.7%	#BENZO(B)FLUORANTH
#BENZO(K)FLUORANTH	0.903425	0.940813	0.977032	0.978219	1.012209	0.9623	4.3%	#BENZO(K)FLUORANTH
#BENZO(A)PYRENE	0.942453	0.970441	0.987022	1.011344	1.020765	0.9864	3.2%	#BENZO(A)PYRENE
#I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	#I.S. 6
BENZO(B)FLUORANTH	0.893191	0.906143	0.888723	0.903944	0.916836	0.9018	1.2%	BENZO(B)FLUORANTH
BENZO(K)FLUORANTH	0.926087	0.945611	0.937658	0.937095	0.921355	0.9336	1.0%	BENZO(K)FLUORANTH
BENZO(A)PYRENE	0.936025	0.948006	0.935947	0.944944	0.947181	0.9424	0.6%	BENZO(A)PYRENE
I.S. 6	1.000000	1.000000	1.000000	1.000000	1.000000	1.0000	0.0%	I.S. 6
#INDENO(123-CD)PYR	0.969261	1.013854	1.029134	1.071122	1.147291	1.0461	6.4%	#INDENO(123-CD)PYR
#DIBENZO(AH)ANTHRA	0.973338	1.008078	1.019165	1.053169	1.120081	1.0348	5.4%	#DIBENZO(AH)ANTHRA
#BENZO(GHI)PERYLENE	0.975810	1.002238	0.994982	1.031620	1.039068	1.0087	2.6%	#BENZO(GHI)PERYLENE
INDENO(123-CD)PYRE	0.961614	0.982016	0.963894	0.997804	1.042404	0.9895	3.3%	INDENO(123-CD)PYRE
DIBENZO(AH)ANTHRAC	0.996601	0.995139	0.971141	0.977414	1.027841	0.9936	2.2%	DIBENZO(AH)ANTHRAC
BENZO(GHI)PERYLENE	0.967522	0.979849	0.941809	0.966693	0.970803	0.9653	1.5%	BENZO(GHI)PERYLENE

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CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000

GC INJECTION LOG NUMBER: D4149

INSTRUMENT: 04

INITIAL CALIBRATION: JAN 18, 1991
DEC 10, 1990 JNW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.55867	-5.4
2,3-BENZOFURAN	0.72092	0.66443	0.65307	-1.7
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.16314	15.6
#2-METHYLNAPHTHALE	1.01468	1.06087	1.20203	13.3
#1-METHYLNAPHTHALE	0.98706	1.02109	1.15757	13.4
NAPHTHALENE	0.89772	0.87842	0.97895	11.4
#I.S. 2	1.16823	1.06325	1.02856	-3.3
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALEN	0.88049	0.93884	1.03113	9.8
1-METHYLNAPHTHALEN	0.86430	0.92061	0.99975	8.6
#ACENAPHTHYLENE	0.71027	0.61308	0.67974	10.9
#ACENAPHTHENE	0.65652	0.57071	0.62287	9.1
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.60794	7.9
ACENAPHTHYLENE	1.04975	0.87674	0.95100	8.5
ACENAPHTHENE	0.97900	0.79899	0.87291	9.3
FLUORENE	0.98383	0.83500	0.89933	7.7
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.56438	6.3
#ANTHRACENE	0.62901	0.52968	0.55875	5.5
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.54320	3.2
ANTHRACENE	0.62636	0.51384	0.54559	6.2
#FLUORANTHENE	0.58343	0.48886	0.51024	4.4
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.49640	4.6
#TERPHENYL-d14	0.60379	0.54481	0.56901	4.4
FLUORANTHENE	0.57517	0.46724	0.49724	6.4
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.48174	0.5
TERPHENYL-d14	0.58693	0.53185	0.54665	2.8
#BENZO (A) ANTHRACEN	1.11793	1.01000	1.03487	2.5
#CHRYSENE	1.10824	1.01344	1.05496	4.1
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO (A) ANTHRACENE	1.12438	0.97400	1.00976	3.7
CHRYSENE	1.09070	0.98318	1.02559	4.3
#BENZO (B) FLUORANTH	1.01718	0.95409	0.96394	1.0
#BENZO (K) FLUORANTH	1.08931	0.96234	0.99085	3.0
#BENZO (A) PYRENE	1.04437	0.98640	1.00430	1.8
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO (B) FLUORANTHE	1.03038	0.90177	0.92774	2.9
BENZO (K) FLUORANTHE	1.08529	0.93356	0.95822	2.6
BENZO (A) PYRENE	1.04589	0.94242	0.96436	2.3
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO (123-CD) PYR	1.05372	1.04613	1.03601	-1.0
#DIBENZO (AH) ANTHRA	1.03899	1.03477	1.01946	-1.5
#BENZO (GHI) PERYLEN	0.92894	1.00874	0.99849	-1.0
INDENO (123-CD) PYRE	1.08008	0.98955	1.00940	2.0
DIBENZO (AH) ANTHRA	1.04174	0.99767	1.00251	0.2

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BENZOL(GB1)PERYLENE

0.75137

0.76334

1.00160

3.0

$$\text{PERCENT DIFFERENCE} = \frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$$

D4149

000015

CONTINUING CALIBRATION - DB5/DB17/FID - LIMS/CLAS 2000
 GC INJECTION LOG NUMBER: D4159 JAN 18, 1991
 INSTRUMENT: 04 INITIAL CALIBRATION: DEC 18, 1990 JW

RELATIVE RESPONSE FACTOR VALIDITY

COMPOUND	HISTORICAL RRF	INIT.CAL. MEAN RRF	CONTINUING RRF	% DIFF. from MEAN
=====	=====	=====	=====	=====
#I.S. 1	1.00000	1.00000	1.00000	0.0
#2,3-BENZOFURAN	0.67420	0.59080	0.54627	-7.5
2,3-BENZOFURAN	0.72092	0.66443	0.64272	-3.3
I.S. 1	1.00000	1.00000	1.00000	0.0
#NAPHTHALENE	1.02505	1.00577	1.17024	16.4
#2-METHYLNAPHTHALE	1.01468	1.06087	1.21652	14.7
#1-METHYLNAPHTHALE	0.98706	1.02109	1.14528	12.2
NAPHTHALENE	0.89772	0.87842	0.97732	11.3
#I.S. 2	1.16823	1.06325	1.02012	-4.1
#I.S. 3	1.00000	1.00000	1.00000	0.0
2-METHYLNAPHTHALE	0.88049	0.93884	1.03951	10.7
1-METHYLNAPHTHALE	0.86430	0.92061	1.00471	9.1
#ACENAPHTHYLENE	0.71027	0.61308	0.66856	9.0
#ACENAPHTHENE	0.65652	0.57071	0.60594	6.2
I.S. 2	1.00000	1.00000	1.00000	0.0
#FLUORENE	0.65036	0.56357	0.59407	5.4
ACENAPHTHYLENE	1.04975	0.87674	0.95747	9.2
ACENAPHTHENE	0.97900	0.79899	0.88558	10.8
FLUORENE	0.98383	0.83500	0.89508	7.2
I.S. 3	1.00000	1.00000	1.00000	0.0
#PHENANTHRENE	0.61730	0.53082	0.54507	2.7
#ANTHRACENE	0.62901	0.52968	0.54238	2.4
#I.S. 4	1.00000	1.00000	1.00000	0.0
PHENANTHRENE	0.62835	0.52641	0.53430	1.5
ANTHRACENE	0.62636	0.51384	0.53601	4.3
#FLUORANTHENE	0.58343	0.48886	0.49529	1.3
I.S. 4	1.00000	1.00000	1.00000	0.0
#PYRENE	0.58641	0.47478	0.48425	2.0
#TERPHENYL-d14	0.60379	0.54481	0.55434	1.7
FLUORANTHENE	0.57517	0.46724	0.47832	2.4
#I.S. 5	1.00000	1.00000	1.00000	0.0
PYRENE	0.56475	0.47958	0.48360	0.8
TERPHENYL-d14	0.58693	0.53185	0.53677	0.9
#BENZO(A)ANTHRACEN	1.11793	1.01000	0.99453	-1.5
#CHRYSENE	1.10824	1.01344	1.01140	-0.2
I.S. 5	1.00000	1.00000	1.00000	0.0
BENZO(A)ANTHRACENE	1.12438	0.97400	0.98034	0.7
CHRYSENE	1.09070	0.98318	0.99555	1.3
#BENZO(B)FLUORANTH	1.01718	0.95409	0.92941	-2.6
#BENZO(K)FLUORANTH	1.08931	0.96234	0.95352	-0.9
#BENZO(A)PYRENE	1.04437	0.98640	0.96759	-1.9
#I.S. 6	1.00000	1.00000	1.00000	0.0
BENZO(B)FLUORANTHE	1.03038	0.90177	0.90550	0.4
BENZO(K)FLUORANTHE	1.08529	0.93356	0.92635	-0.8
BENZO(A)PYRENE	1.04589	0.94242	0.94324	0.1
I.S. 6	1.00000	1.00000	1.00000	0.0
#INDENO(123-CD)PYR	1.05372	1.04613	1.00981	-3.5
#DIBENZO(AH)ANTHRA	1.03899	1.03477	0.98437	-4.9

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INDENO(123-CD)PYRE	1.08008	0.98955	0.97934	-1.0
DIBENZO(AH)ANTHRAC	1.06174	0.99363	0.97655	-1.7
BENZO(GHI)PERYLENE	0.95157	0.96534	0.96823	0.3

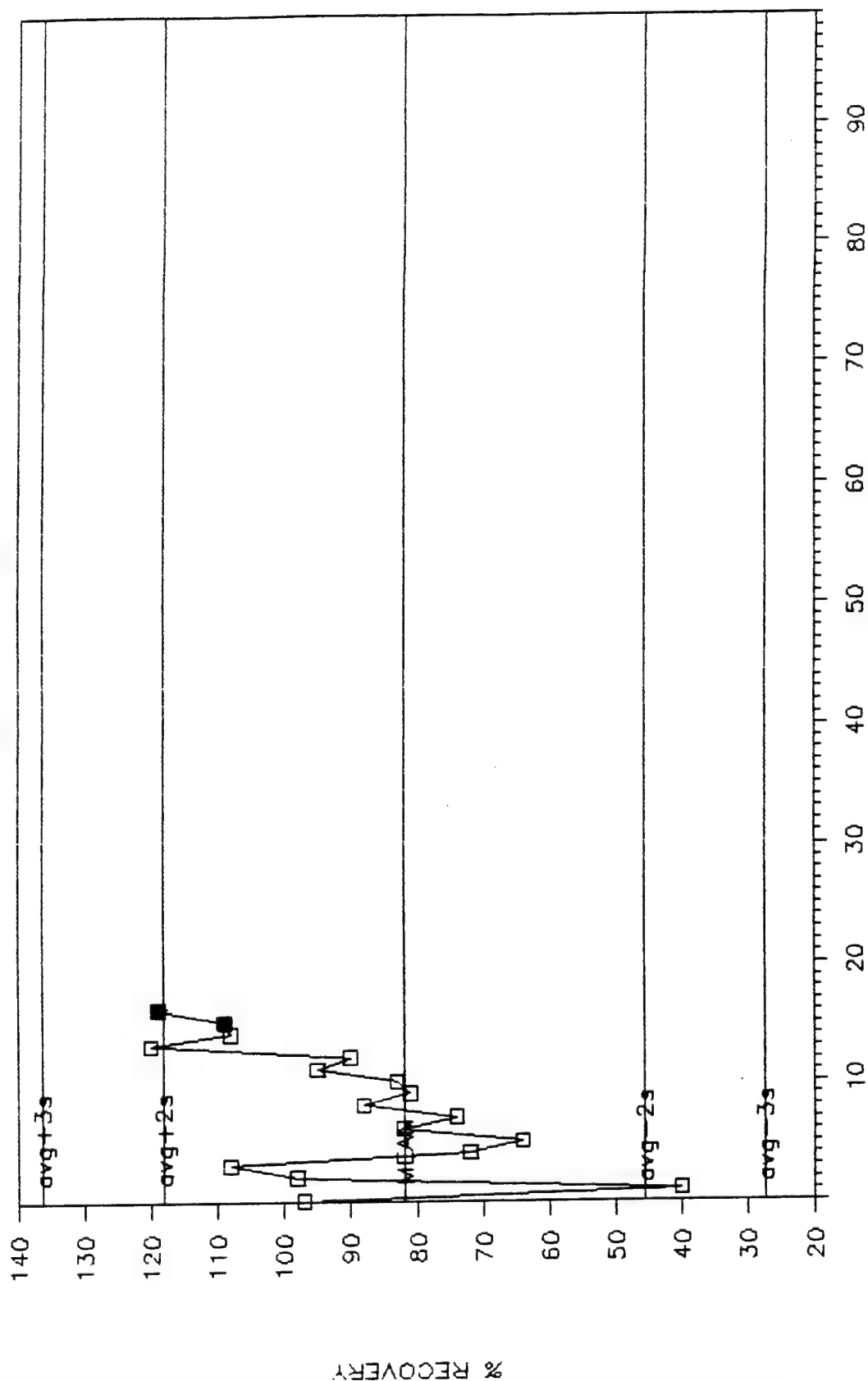
PERCENT DIFFERENCE =
$$\frac{(\text{Continuing RRF} - \text{Mean RRF}) \times 100}{\text{Mean RRF}}$$

D4159

000017

SURROGATE RECOVERY - PNA

TERPHENYL-D14 - WATER



810000

WATER (CONT. EXT.)

PNAs

0

SAMPLE #

DATE

T-D14
SURROGATE
% REC.T-D14
ACCEPT. OUTLIER
? ?

COMMENTS

1	W11139B1	12/05/89	97.0	YES	ERR	NO	NO	NO	NO
2	W11209B1	12/11/89	40.0	YES	ERR	NO	NO	NO	NO
3	C12059B1	12/16/89	98.0	YES	ERR	NO	NO	NO	NO
4	C12119B1	12/16/89	108.0	YES	ERR	NO	NO	NO	NO
5	C03050B1	3/11/90	72.0	YES	ERR	NO	NO	NO	NO
6	C03120B1	3/17/90	64.0	YES	ERR	NO	NO	NO	NO
7	C03300B1	4/16/90	82.0	YES	ERR	NO	NO	NO	NO
8	C04090B1	4/18/90	74.0	YES	ERR	NO	NO	NO	NO
9	C07060B1	7/13/90	88.0	YES	ERR	NO	NO	NO	NO
10	C07190B1	7/27/90	81.0	YES	ERR	NO	NO	NO	NO
11	C09190B1	9/25/90	83.0	YES	ERR	NO	NO	NO	NO
12	C09210B1	9/25/90	95.0	YES	ERR	NO	NO	NO	NO
13	C09240B1	10/6/90	90.0	YES	ERR	NO	NO	NO	NO
14	C09250B1	10/7/90	120.0	YES	ERR	NO	NO	NO	NO
15	C09270B1	10/7/90	108.0	YES	ERR	NO	NO	NO	NO
→ 16	C01221B1	1/25/91	109.0	YES	ERR	NO	NO	NO	NO
→ 17	C01231B1	1/26/91	119.0	YES	ERR	NO	NO	NO	NO
18									
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48									

000019

CASE NARRATIVE
Cations

Batch Number: 17634

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:
All holding times were met.

II. Analysis:

- A. Blanks:
All acceptance criteria were met.
- B. Calibration:
All acceptance criteria were met.
- C. ICP Interference Check Sample:
All acceptance criteria were met.
- D. Spike Sample Analysis:
All acceptance criteria were met.
- E. Duplicate Sample Analysis:
All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
All acceptance criteria were met.
- G. ICP Serial Dilution:
Not required for this level QC.
- H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: 

Kevin A. Sanders
Inorganic Division Manager

DATE: 15 FEB 91

000020

REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Atten: MR. J.P. MARTIN

Sample Description: D-62 1400 GRAB

Laboratory Sample Number: 17634001 Date Collected: 01/22/91 Matrix: WATER

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	64 F	124	F	02/15/91
Lead	EPA239.2/SW7421	1.5	11.7	mg/L	01/30/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 

INRPRPT(v910124)

000021



REPORT OF ANALYTICAL RESULTS

Date: 02/15/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SP
BIRMINGHAM AIR NATIONAL GUARD
Laboratory Number: 17634
Date Received: 01/23/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 17634ZW1

Date Collected: 01/23/91

Matrix: WATER BLANK

Analytical Parameter	Method	Det Limit	Result	Units	Ana Date
Flashpoint	SW1010	64 F	>212	F	02/15/91
Lead	EPA239.2/SW7421	3	<3	ug/L	01/30/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

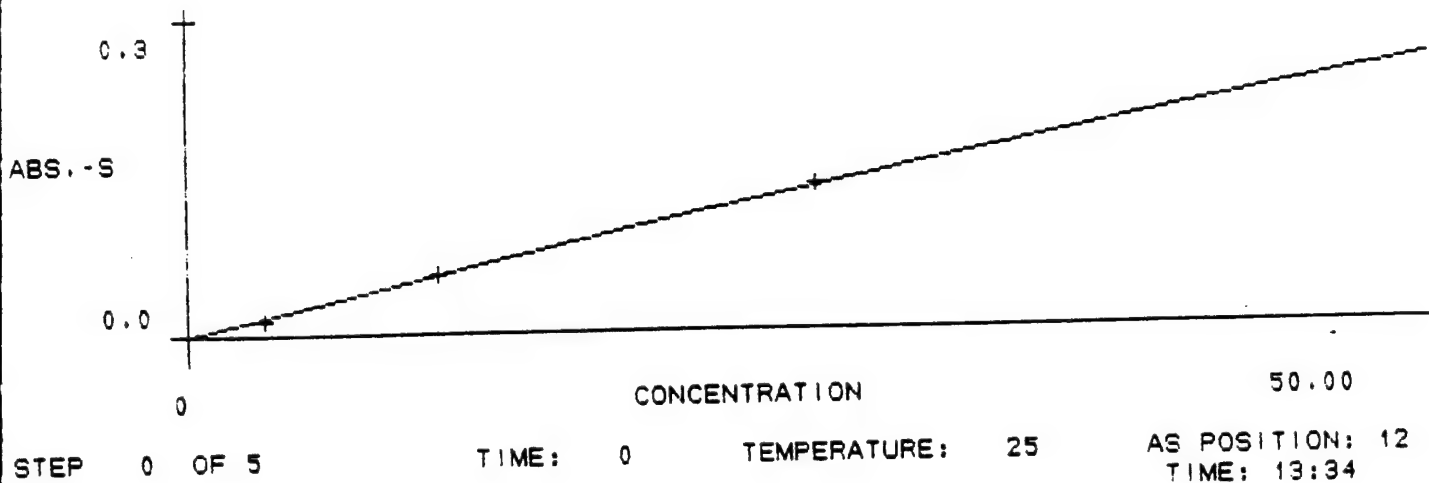
Reviewed by: 

INRPRPT(v910124)

000022

INITIAL CALIBRATION

LEAD



CONCENTRATION (ug/L)

ABSORBANCE

3.0
10.0
25.0
50.0

0.043
0.085
0.190
0.347

Correlation Coefficient = 0.9997

000023

LEVEL 1

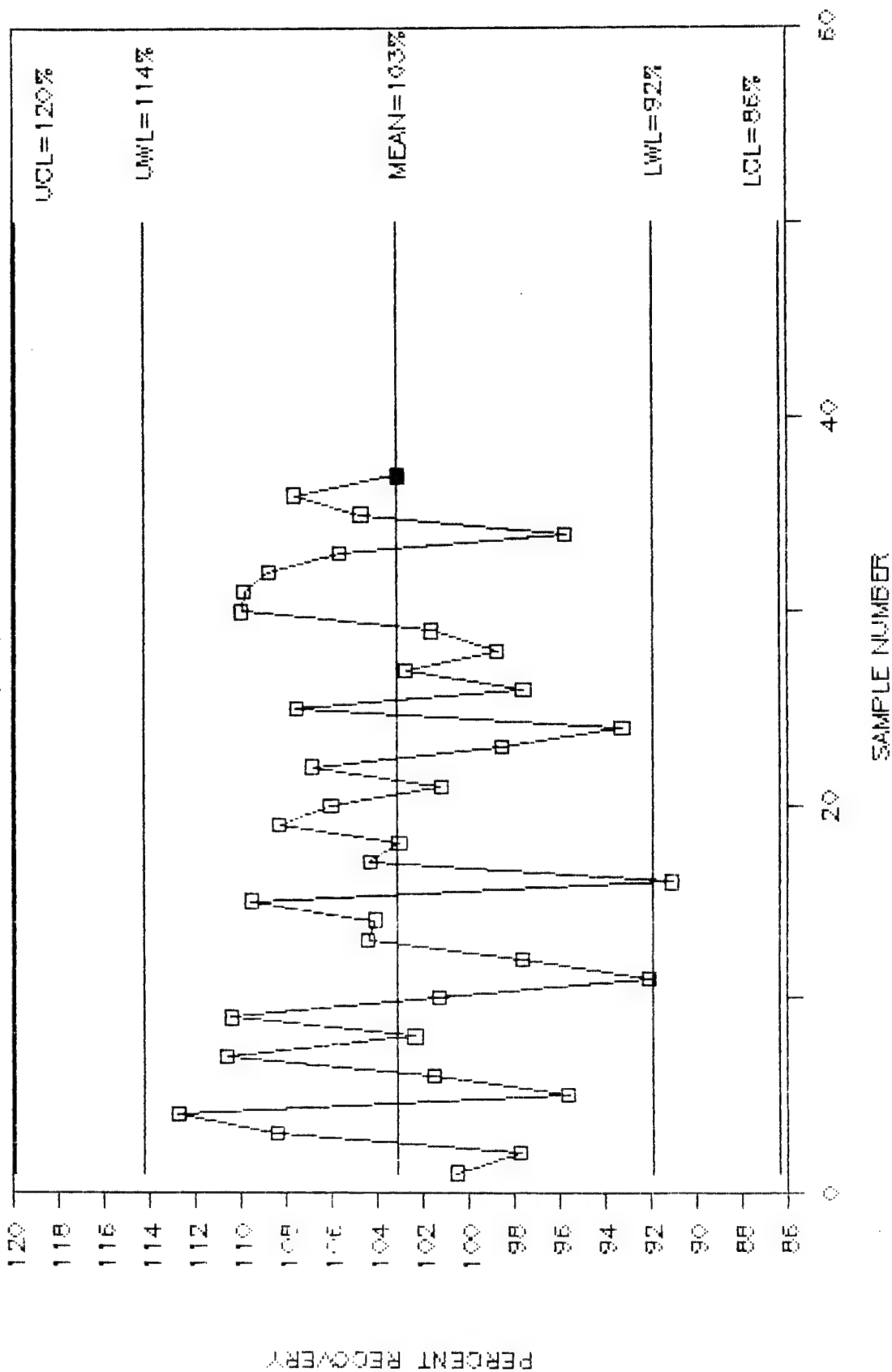
Batch Number(s) : 17634

Control Limits: 90.0-110.0 (except as noted)

000024

LABORATORY CONTROL SAMPLE (WATER) - LEAD

02/02/91



000025

SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
02/02/91 WATER MATRIX

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC	
1	16702	06SEPT90	XXXXXXXXXX	39	39.220	100.6
2	16737	10SEPT90	XXXXXXXXXX	39	38.130	97.8
3	16858	01OCT90	XXXXXXXXXX	39	42.310	108.5
4	16789	02OCT90	XXXXXXXXXX	39	43.990	112.8
5	16942	05OCT90	XXXXXXXXXX	39	37.300	95.6
6	16933	08OCT90	XXXXXXXXXX	39	39.620	101.6
7	17000	16OCT90	XXXXXXXXXX	39	43.160	110.7
8	17033	17OCT90	XXXXXXXXXX	39	39.930	102.4
9	16999	19OCT90	XXXXXXXXXX	39	43.080	110.5
10	17037	22OCT90	XXXXXXXXXX	39	39.520	101.3
11	17047	22OCT90	XXXXXXXXXX	39	35.920	92.1
12	17034	25OCT90	XXXXXXXXXX	39	38.100	97.7
13	17074	29OCT90	XXXXXXXXXX	39	40.720	104.4
14	17127	05NOV90	XXXXXXXXXX	39	40.600	104.1
15	17140	07NOV90	XXXXXXXXXX	39	42.740	109.6
16	17093	07NOV90	XXXXXXXXXX	39	35.530	91.1
17	17168	14NOV90	XXXXXXXXXX	39	40.690	104.3
18	17213	14NOV90	XXXXXXXXXX	39	40.190	103.1
19	17227	27NOV90	XXXXXXXXXX	39	42.250	108.3
20	17250	27NOV90	XXXXXXXXXX	39	41.360	106.1
21	17274	04DEC90	XXXXXXXXXX	39	39.490	101.3
22	17297	04DEC90	XXXXXXXXXX	39	41.680	106.9
23	17349	07DEC90	XXXXXXXXXX	39	38.440	98.6
24	17313	07DEC90	XXXXXXXXXX	39	36.380	93.3
25	12/10/90	14DEC90	XXXXXXXXXX	39	41.950	107.6
26	12/12/90	14DEC90	XXXXXXXXXX	39	38.070	97.6
27	12/14/90	18DEC90	XXXXXXXXXX	39	40.080	102.8
28	12/17/90	26DEC90	XXXXXXXXXX	39	38.510	98.7
29	12/20/90	26DEC90	XXXXXXXXXX	39	39.630	101.6
30	12/24/90	28DEC90	XXXXXXXXXX	39	42.900	110.0
31	01/02/91	07JAN91	XXXXXXXXXX	39	42.850	109.9
32	01/08/91	15JAN91	XXXXXXXXXX	39	42.430	108.8
33	01/15/91	16JAN91	XXXXXXXXXX	39	41.200	105.6
34	01/17/91	18JAN91	XXXXXXXXXX	39	37.340	95.7
35	01/22/91	23JAN91	XXXXXXXXXX	39	40.840	104.7
36	01/17/91	25JAN91	XXXXXXXXXX	39	41.980	107.6
37	01/25/91	30JAN91	XXXXXXXXXX	39	40.220	103.1
38						
39						
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41						
42						
43						
44						
45						
46						
47						
48						
49						
50						

MEAN RECOVERY = 103.1427
STD(N-1) = 5.585146
2 STD(N-1) = 11.17029
3 STD(N-1) = 16.75343

X 103.1
MEAN
X+2S 114.3
UWL
X+3S 119.9
UCL
X-2S 92.0
LWL
X-3S 86.4
LCL

000025



Client: CH2M HILL/MGM/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Sample Number: 89489-90
Date Received: 01/24/91

Dear Client:

The Gainesville Organics Laboratory received your samples with a request for analysis of selected parameters.

The analytical results are enclosed. No unusual difficulties were encountered in the analyses.

If you should have any questions concerning the results please contact us. Thank you.

Sincerely,

Tom Emenhiser
Client Services

17634
ER 2/13
2/14
2/15
DATA ENTRY
DATA PACKAGE

000027

CH2M Hill Organics Laboratory
Analytical Report

Report Contents

Sample Information

Definitions of Reporting Qualifiers

Description of Analytical Methods

Sample Quantitation Reports including Surrogate Recoveries

QA/QC Package Including:

Initial Calibration (*)

Continuing Calibration (Daily Standard) (*)

Quantitation Reports for Organic-Free Water Blanks

Matrix Spike/Matrix Spike Duplicate (*)

Surrogate Control Charts (*)

Chromatograms (*)

Copy of Chain-of-Custody

(*) Information provided where applicable or when requested.

SAMPLE INFORMATION

Client: CH2M HILL/MGM/BANG
Attention: MS. EMILY RAMUCHAK
Address: CH2M HILL MONTGOMERY OFFICE

Description: WATER SAMPLES
BANG
601/602 ANALYSIS
LMG 17634

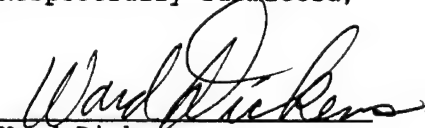
Sample Number: 89489-90
Quantity: 2
Date Received: 01/24/91
Date Completed: 02/03/91
Date Reported: 02/11/91
Project Number: MGM 27232.UB.SP
Number of Pages: 16

The information shown in this report is test data only
and no interpretation of this data is intended or implied.

State of Alabama Certification No.: 40080

State of Florida Certification No.: 82112, E82124

Respectfully submitted,


Ward Dickens
Laboratory Manager

000029

Definitions of Reporting Qualifiers

Result Qualifiers

- (U) Indicates the compound was analyzed for but not detected. The number adjacent to the "U" qualifier indicates the Reporting Limit for that compound. The Reporting Limit can vary from sample to sample depending on dilution factors or percent moisture adjustment when indicated.
- (JX) Presence indicated but less than stated Reporting Limit. In a diluted sample, a clearly defined peak was present at less than the stated Reporting Limit.

Analysis (Run) Qualifiers

- (M) Matrix interference precludes achieving lower Reporting Limit. The Reporting Limit is determined by the largest peak in the sample, and the dilution is adjusted so that neither chemical nor electronic overload of the gas chromatography system takes place. Either condition could affect the reliability of peak identification and quantitation.
- (N) Sample contains non-target compounds. Many samples, especially "fuel" samples, often contain non-target compounds. This qualifier is used to alert the client to the presence of non-target compounds in samples, even if no target compounds are detected.

Reporting Limit = 1.0 ug/l for water samples and 1.0 ug/kg for soil and sediment samples unless noted otherwise.

Note: the minimum Reporting Limit for methanol extracts of high-level soil and sediment samples is 50 ug/kg due to the effect of methanol on "purging efficiency."

000030

Analytical Methods

Purgeable Halocarbons in Water: EPA Method 601 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Water: EPA Method 602 as described in the Title 40 Code of Federal Regulations, Part 136, Appendix A, July, 1988, and CH2M Hill GC Volatiles SOP, October, 1988.

Purgeable Halocarbons in Soil and Sediment: EPA Method 8010 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2H Hill GC Volatiles SOP, October, 1988.

Purgeable Aromatics in Soil: EPA Method 8020 as described in Test Methods for Evaluating Solid Waste (SW-846) and CH2M Hill GC Volatiles SOP, October, 1988.

Trihalomethanes in Water: EPA Method 501.1 as described in the Federal Register, Vol. 44, No. 231, Appendix C, and CH2M Hill Volatiles SOP, October, 1988.

Ethylene Dibromide in Water: EPA Method 504 (1,2-dibromomethane and 1,2-dibromo-3-chloropropane in water by microextraction and gas chromatography).

Fuel Screening: Procedure for estimation of concentration and identification of "fuel" samples; used to assist in determination of required EPA methods for subsequent analysis. This methodology is not an established EPA procedure.

State of Alabama Certification Number: 40080

State of Florida Certification Numbers: 82112 and E82124

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/22/91
Project: BANG	Lab Sample Id: 89489	Date Received: 01/24/91
Proj No: MGM 27232.UB.SP	% Moisture 0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 50	Date Analyzed: 02/03/91
Matrix: WATER	Instrument ID: GC#1	Analyst: CJ
Sampler: HS	Column: J & W DB-624	Date Reported: 02/05/91

Client Sample ID/Description: D-62 (M,N) (LMG 17634-01)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	50	U	ug/L
75-01-4	Vinyl Chloride	50	U	ug/L
74-83-9	Bromomethane	50	U	ug/L
75-00-3	Chloroethane	50	U	ug/L
75-69-4	Trichlorofluoromethane	50	U	ug/L
75-35-4	1,1-Dichloroethene	50	U	ug/L
75-09-2	Dichloromethane	50	U	ug/L
156-60-5	trans-1,2-Dichloroethene	50	U	ug/L
75-34-3	1,1-Dichloroethane	50	U	ug/L
67-66-3	Chloroform	50	U	ug/L
107-06-2	1,2-Dichloroethane	50	U	ug/L
71-55-6	1,1,1-Trichloroethane	50	U	ug/L
56-23-5	Carbon Tetrachloride	50	U	ug/L
78-87-5	1,2-Dichloropropane	50	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	50	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	50	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	50	U	ug/L
79-00-5	1,1,2-Trichloroethane	50	U	ug/L
124-48-1	Dibromochloromethane	50	U	ug/L
127-18-4	Tetrachloroethene	50	U	ug/L
108-90-7	Chlorobenzene	50	U	ug/L
75-25-2	Bromoform	50	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	50	U	ug/L
541-73-1	1,3-Dichlorobenzene	50	U	ug/L
106-46-7	1,4-Dichlorobenzene	50	U	ug/L
95-50-1	1,2-Dichlorobenzene	50	U	ug/L
1634-04-4	tert-Butyl methyl ether	50	U	ug/L
71-43-2	Benzene	50	U	ug/L
108-88-3	Toluene	50	U	ug/L
100-41-4	Ethylbenzene	50	U	ug/L
N/A	Xylenes (Total)	50	220	ug/L

74-97-5	Bromochloromethane-SS	103	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	94	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by:

Charlie Jarman 2/11/91

000032

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM	Laboratory: GAINESVILLE	Date Sampled: 01/22/91
Project: BANG	Lab Sample Id: 89490	Date Received: 01/24/91
Proj No: MGM 27232.UB.SP	% Moisture: 0.0	Date Extracted: N/A
Method: 601/602	Dilution Factor: 1.0	Date Analyzed: 01/31/91
Matrix: WATER	Instrument ID: GC#1	Analyst: SS
Sampler: HS	Column: J & W DB-624	Date Reported: 02/04/91

Client Sample ID/Description: TRIP BLANK (LMG 17634-02)

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
79-01-6	Trichloroethene	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
75-27-4	Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	97	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	99	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

000033

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
 Project: BANG
 Proj No: MGM 27232.UB.SP
 Method: 601/602
 Matrix: WATER
 Sampler: N/A

Laboratory: GAINESVILLE
 Lab Sample Id: 1VB0130A
 % Moisture: 0.0
 Dilution Factor: 1.0
 Instrument ID: GC#1
 Column: J & W DB-624

Date Sampled: 01/30/91
 Date Received: N/A
 Date Extracted: N/A
 Date Analyzed: 01/30/91
 Analyst: SS
 Date Reported: 02/04/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
79-01-6	Trichloroethene	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
75-27-4	Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	99	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	103	%rec

U = Compound analyzed for but not detected
 SS = Surrogate Standard reported as percent recovery

Reviewed by: Charlie Jarman 2/11/91

Report of Analytical Data - Purgeable Halocarbons/Aromatics

Client: CH2M HILL/MGM
Project: BANG
Proj No: MGM 27232.UB.SP
Method: 601/602
Matrix: WATER
Sampler: N/A

Laboratory: GAINESVILLE
Lab Sample Id: 2VB0203A
% Moisture: 0.0
Dilution Factor: 1.0
Instrument ID: GC#1
Column: J & W DB-624

Date Sampled: 02/03/91
Date Received: N/A
Date Extracted: N/A
Date Analyzed: 02/03/91
Analyst: CJ
Date Reported: 02/05/91

Client Sample ID/Description: OFW BLANK

CAS Number	Compound	Reporting Limit	Sample Result	Reporting Units
74-87-3	Chloromethane	1.0	U	ug/L
75-01-4	Vinyl Chloride	1.0	U	ug/L
74-83-9	Bromomethane	1.0	U	ug/L
75-00-3	Chloroethane	1.0	U	ug/L
75-69-4	Trichlorofluoromethane	1.0	U	ug/L
75-35-4	1,1-Dichloroethene	1.0	U	ug/L
75-09-2	Dichloromethane	1.0	U	ug/L
156-60-5	trans-1,2-Dichloroethene	1.0	U	ug/L
75-34-3	1,1-Dichloroethane	1.0	U	ug/L
67-66-3	Chloroform	1.0	U	ug/L
107-06-2	1,2-Dichloroethane	1.0	U	ug/L
71-55-6	1,1,1-Trichloroethane	1.0	U	ug/L
56-23-5	Carbon Tetrachloride	1.0	U	ug/L
78-87-5	1,2-Dichloropropane	1.0	U	ug/L
79-01-6	Trichloroethene			
75-27-4	and Bromodichloromethane	1.0	U	ug/L
10061-01-5	cis-1,3-Dichloropropene	1.0	U	ug/L
10061-02-6	trans-1,3-Dichloropropene	1.0	U	ug/L
79-00-5	1,1,2-Trichloroethane	1.0	U	ug/L
124-48-1	Dibromochloromethane	1.0	U	ug/L
127-18-4	Tetrachloroethene	1.0	U	ug/L
108-90-7	Chlorobenzene	1.0	U	ug/L
75-25-2	Bromoform	1.0	U	ug/L
79-34-5	1,1,2,2-Tetrachloroethane	1.0	U	ug/L
541-73-1	1,3-Dichlorobenzene	1.0	U	ug/L
106-46-7	1,4-Dichlorobenzene	1.0	U	ug/L
95-50-1	1,2-Dichlorobenzene	1.0	U	ug/L
1634-04-4	tert-Butyl methyl ether	1.0	U	ug/L
71-43-2	Benzene	1.0	U	ug/L
108-88-3	Toluene	1.0	U	ug/L
100-41-4	Ethylbenzene	1.0	U	ug/L
N/A	Xylenes (Total)	1.0	U	ug/L

74-97-5	Bromochloromethane-SS	101	%rec
98-08-8	a,a,a-Trifluorotoluene-SS	97	%rec

U = Compound analyzed for but not detected
SS = Surrogate Standard reported as percent recovery

Reviewed by:

Charlie Jannan 2/11/91

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WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
1	2VB0828AH	8/28/90	81.0	95.0	YES	NO	YES	NO
2	1VB0829A	8/29/90	109.0	94.0	YES	NO	YES	NO
3	2VB0829AH	8/29/90	80.0	93.0	YES	NO	YES	NO
4	1VB0830A	8/30/90	105.0	88.0	YES	NO	YES	NO
5	2VB0830AH	8/30/90	110.0	94.0	YES	NO	YES	NO
6	1VB0831A	8/31/90	102.0	103.0	YES	NO	YES	NO
7	2VB0831AH	8/31/90	95.0	98.0	YES	NO	YES	NO
8	1VB0901B	9/1/90	103.0	92.0	YES	NO	YES	NO
9	2VB0901AH	9/1/90	112.0	92.0	YES	NO	YES	NO
10	1VB0902B	9/2/90	104.0	89.0	YES	NO	YES	NO
11	1VB0903A	9/3/90	97.0	104.0	YES	NO	YES	NO
12	1VB0904A	9/4/90	113.0	92.0	YES	NO	YES	NO
13	2VB0904AH	9/4/90	97.0	95.0	YES	NO	YES	NO
14	1VB0905A	9/5/90	100.0	95.0	YES	NO	YES	NO
15	2VB0905AH	9/5/90	101.0	96.0	YES	NO	YES	NO
16	2VB0906BHM	9/6/90	103.0	101.0	YES	NO	YES	NO
17	1VB0907A	9/7/90	101.0	87.0	YES	NO	YES	NO
18	2VB0907AH	9/7/90	107.0	103.0	YES	NO	YES	NO
19	1VB0908A	9/8/90	94.0	94.0	YES	NO	YES	NO
20	2VB0908AH	9/8/90	96.0	96.0	YES	NO	YES	NO
21	1VB0909A	9/9/90	114.0	100.0	YES	NO	YES	NO
22	1VB0910A	9/10/90	102.0	102.0	YES	NO	YES	NO
23	2VB0910AH	9/10/90	91.0	106.0	YES	NO	YES	NO
24	1VB0911A	9/11/90	98.0	101.0	YES	NO	YES	NO
25	2VB0911AH	9/11/90	93.0	101.0	YES	NO	YES	NO
26	1VB0912B	9/12/90	96.0	95.0	YES	NO	YES	NO
27	2VB0912A	9/12/90	97.0	100.0	YES	NO	YES	NO
28	1VB0913B	9/13/90	111.0	93.0	YES	NO	YES	NO
29	1VB0914B	9/14/90	96.0	104.0	YES	NO	YES	NO
30	2VB0914A	9/14/90	91.0	105.0	YES	NO	YES	NO
31	1VB0915A	9/15/90	101.0	96.0	YES	NO	YES	NO
32	2VB0915B	9/15/90	102.0	101.0	YES	NO	YES	NO
33	1VB0916A	9/16/90	99.0	89.0	YES	NO	YES	NO
34	2VB0916A	9/16/90	90.0	99.0	YES	NO	YES	NO
35	1VB0917A	9/17/90	103.0	97.0	YES	NO	YES	NO
36	2VB0917A	9/17/90	95.0	101.0	YES	NO	YES	NO
37	1VB0918A	9/18/90	103.0	101.0	YES	NO	YES	NO
38	2VB0918A	9/18/90	100.0	94.0	YES	NO	YES	NO
39	2VB0919A	9/19/90	98.0	103.0	YES	NO	YES	NO
40	2VB0920A	9/20/90	100.0	97.0	YES	NO	YES	NO
41	2VB0921A	9/21/90	100.0	96.0	YES	NO	YES	NO
42	2VB0922A	9/22/90	94.0	98.0	YES	NO	YES	NO
43	2VB0923A	9/23/90	93.0	100.0	YES	NO	YES	NO
44	1VB0923AH	9/23/90	100.0	103.0	YES	NO	YES	NO
45	1VB0924AH	9/24/90	100.0	101.0	YES	NO	YES	NO
46	2VB0924A	9/24/90	94.0	102.0	YES	NO	YES	NO
47	1VB0925AH	9/25/90	100.0	101.0	YES	NO	YES	NO
48	2VB0925A	9/25/90	89.0	101.0	YES	NO	YES	NO
49	1VB0926A	9/26/90	100.0	98.0	YES	NO	YES	NO
50	2VB0926A	9/26/90	100.0	102.0	YES	NO	YES	NO
51	2VB0927A	9/27/90	99.0	99.0	YES	NO	YES	NO
52	2VB0928A	9/28/90	102.0	99.0	YES	NO	YES	NO
53	2VB0929A	9/29/90	95.0	98.0	YES	NO	YES	NO
54	2VB0930A	9/30/90	100.0	95.0	YES	NO	YES	NO

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CHM HILL

55	2VB1001A	10/01/90	91.0	100.0	YES	NO	YES	NO
56	2VB1002A	10/02/90	96.0	100.0	YES	NO	YES	NO
57	1VB1003B	10/03/90	114.0	100.0	YES	NO	YES	NO
58	2VB1003A	10/03/90	88.0	100.0	YES	NO	YES	NO
59	1VB1004A	10/04/90	121.0	102.0	YES	NO	YES	NO
60	2VB1004A	10/04/90	88.0	94.0	YES	NO	YES	NO
61	1VB1005A	10/05/90	116.0	106.0	YES	NO	YES	NO
62	2VB1005A	10/05/90	95.0	95.0	YES	NO	YES	NO
63	2VB1006A	10/06/90	98.0	98.0	YES	NO	YES	NO
64	2VB1007A	10/07/90	94.0	95.0	YES	NO	YES	NO
65	1VB1008A	10/08/90	92.0	102.0	YES	NO	YES	NO
66	1VB1009A	10/09/90	118.0	89.0	YES	NO	YES	NO
67	2VB1009A	10/09/90	99.0	100.0	YES	NO	YES	NO
68	2VB1010A	10/10/90	94.0	101.0	YES	NO	YES	NO
69	2VB1011A	10/11/90	97.0	94.0	YES	NO	YES	NO
70	2VB1013A	10/13/90	98.0	97.0	YES	NO	YES	NO
71	2VB1014B	10/14/90	90.0	96.0	YES	NO	YES	NO

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WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
72	2VB1015A	10/15/90	86.0	94.0	YES	NO	YES	NO
73	2VB1016A	10/16/90	95.0	97.0	YES	NO	YES	NO
74	2VB1019A	10/19/90	96.0	94.0	YES	NO	YES	NO
75	2VB1020A	10/20/90	94.0	100.0	YES	NO	YES	NO
76	2VB1021A	10/21/90	82.0	94.0	YES	NO	YES	NO
77	1VB1022A	10/22/90	114.0	94.0	YES	NO	YES	NO
78	2VB1022B	10/22/90	93.0	95.0	YES	NO	YES	NO
79	1VB1023A	10/23/90	102.0	95.0	YES	NO	YES	NO
80	2VB1023A	10/23/90	92.0	94.0	YES	NO	YES	NO
81	1VB1024A	10/24/90	99.0	94.0	YES	NO	YES	NO
82	2VB1024A	10/24/90	88.0	103.0	YES	NO	YES	NO
83	1VB1025A	10/25/90	97.0	92.0	YES	NO	YES	NO
84	2VB1025A	10/25/90	94.0	92.0	YES	NO	YES	NO
85	1VB1026A	10/26/90	96.0	87.0	YES	NO	YES	NO
86	2VB1026A	10/26/90	84.0	103.0	YES	NO	YES	NO
87	1VB1027A	10/27/90	99.0	88.0	YES	NO	YES	NO
88	2VB1027A	10/27/90	95.0	95.0	YES	NO	YES	NO
89	1VB1030A	10/30/90	105.0	89.0	YES	NO	YES	NO
90	2VB1030A	10/30/90	97.0	101.0	YES	NO	YES	NO
91	1VB1031A	10/31/90	100.0	93.0	YES	NO	YES	NO
92	2VB1031A	10/31/90	98.0	96.0	YES	NO	YES	NO
93	1VB1101A	11/01/90	102.0	99.0	YES	NO	YES	NO
94	2VB1101A	11/01/90	94.0	91.0	YES	NO	YES	NO
95	1VB1102A	11/02/90	110.0	92.0	YES	NO	YES	NO
96	2VB1102A	11/02/90	86.0	94.0	YES	NO	YES	NO
97	1VB1103B	11/03/90	111.0	96.0	YES	NO	YES	NO
98	2VB1103A	11/03/90	88.0	96.0	YES	NO	YES	NO
99	2VB1104A	11/04/90	98.0	104.0	YES	NO	YES	NO
100	2VB1105A	11/05/90	95.0	98.0	YES	NO	YES	NO
101	1VB1106A	11/06/90	98.0	101.0	YES	NO	YES	NO
102	2VB1106A	11/06/90	94.0	100.0	YES	NO	YES	NO
103	1VB1109A	11/09/90	108.0	99.0	YES	NO	YES	NO

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CHM HILL

104	2VB1109A	11/09/90	103.0	98.0	YES	NO	YES	NO
105	2VB1110A	11/10/90	97.0	102.0	YES	NO	YES	NO
106	1VB1111A	11/11/90	118.0	110.0	YES	NO	YES	NO
107	1VB1112A	11/12/90	87.0	102.0	YES	NO	YES	NO
108	2VB1112B	11/12/90	104.0	98.0	YES	NO	YES	NO
109	1VB1113A	11/13/90	81.0	102.0	YES	NO	YES	NO
110	2VB1113A	11/13/90	105.0	100.0	YES	NO	YES	NO
111	1VB1114A	11/14/90	99.0	104.0	YES	NO	YES	NO
112	2VB1114A	11/14/90	103.0	100.0	YES	NO	YES	NO
113	1VB1115A	11/15/90	82.0	97.0	YES	NO	YES	NO
114	2VB1115A	11/15/90	102.0	96.0	YES	NO	YES	NO
115	1VB1116A	11/16/90	108.0	104.0	YES	NO	YES	NO
116	2VB1116A	11/16/90	89.0	103.0	YES	NO	YES	NO
117	1VB1117A	11/17/90	102.0	96.0	YES	NO	YES	NO
118	1VB1118A	11/18/90	111.0	98.0	YES	NO	YES	NO
119	1VB1119B	11/19/90	108.0	98.0	YES	NO	YES	NO
120	2VB1120A	11/20/90	102.0	108.0	YES	NO	YES	NO
121	2VB1122A	11/22/90	93.0	93.0	YES	NO	YES	NO
122	2VB1123A	11/23/90	82.0	93.0	YES	NO	YES	NO
123	2VB1125A	11/25/90	96.0	96.0	YES	NO	YES	NO
124	2VB1126A	11/26/90	104.0	86.0	YES	NO	YES	NO
125	2VB1127A	11/27/90	104.0	95.0	YES	NO	YES	NO
126	2VB1129A	11/29/90	101.0	101.0	YES	NO	YES	NO
127	2VB1201A	12/01/90	107.0	88.0	YES	NO	YES	NO
128	2VB1206A	12/06/90	106.0	103.0	YES	NO	YES	NO
129	2VB1211B	12/11/90	87.0	95.0	YES	NO	YES	NO
130	2VB1212A	12/12/90	92.0	102.0	YES	NO	YES	NO
131	2VB1214A	12/14/90	100.0	102.0	YES	NO	YES	NO
132	2VB1215A	12/15/90	103.0	99.0	YES	NO	YES	NO
133	1VB1217A	12/17/90	96.0	105.0	YES	NO	YES	NO
134	2VB1217A	12/17/90	93.0	101.0	YES	NO	YES	NO
135	1VB1218A	12/18/90	83.0	99.0	YES	NO	YES	NO
136	2VB1218A	12/18/90	103.0	103.0	YES	NO	YES	NO
137	1VB1219A	12/19/90	110.0	99.0	YES	NO	YES	NO
138	2VB1219A	12/19/90	93.0	100.0	YES	NO	YES	NO
139	1VB1220A	12/20/90	98.0	93.0	YES	NO	YES	NO
140	2VB1220A	12/20/90	84.0	99.0	YES	NO	YES	NO
141	1VB1221A	12/21/90	98.0	94.0	YES	NO	YES	NO
142	2VB1221A	12/21/90	112.0	98.0	YES	NO	YES	NO

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WATER

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SAMPLE #	DATE	601	602	601		602		COMMENTS
		SURROGATE % REC.	SURROGATE % REC.	ACCEPTABLE?	OUTLIER?	ACCEPTABLE?	OUTLIER?	
143	1VB1222A	12/22/90	97.0	94.0	YES	NO	YES	NO
144	2VB1222A	12/22/90	100.0	102.0	YES	NO	YES	NO
145	1VB1223A	12/23/90	92.0	91.0	YES	NO	YES	NO
146	2VB1223A	12/23/90	90.0	98.0	YES	NO	YES	NO
147	2VB1226A	12/26/90	100.0	94.0	YES	NO	YES	NO
148	2VB1227A	12/27/90	98.0	96.0	YES	NO	YES	NO
149	2VB1228A	12/28/90	102.0	98.0	YES	NO	YES	NO
150	2VB1229A	12/29/90	116.0	101.0	YES	NO	YES	NO
151	1VB1230A	12/30/90	94.0	89.0	YES	NO	YES	NO
152	2VB1230A	12/30/90	103.0	97.0	YES	NO	YES	NO

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CHM HILL

153	2VB1231A	12/31/90	110.0	101.0	YES	NO	YES	NO
154	2VB0102A	01/02/91	95.0	99.0	YES	NO	YES	NO
155	2VB0103A	01/03/91	98.0	87.0	YES	NO	YES	NO
156	2VB0104B	01/04/91	99.0	99.0	YES	NO	YES	NO
157	2VB0105A	01/05/91	107.0	97.0	YES	NO	YES	NO
158	2VB0106A	01/06/91	94.0	95.0	YES	NO	YES	NO
159	2VB0107A	01/07/91	102.0	97.0	YES	NO	YES	NO
160	2VB0109B	01/09/91	110.0	106.0	YES	NO	YES	NO
161	2VB0111A	01/11/91	100.0	84.0	YES	NO	NO	NO
162	2VB1112A	01/12/91	84.0	95.0	YES	NO	YES	NO
163	2VB0113A	01/13/91	96.0	96.0	YES	NO	YES	NO
164	2VB0114A	01/14/90	96.0	98.0	YES	NO	YES	NO
165	2VB0115A	01/15/91	115.0	97.0	YES	NO	YES	NO
166	2VB0116A	01/16/91	94.0	91.0	YES	NO	YES	NO
167	2VB0117A	01/17/91	114.0	96.0	YES	NO	YES	NO
168	2VB0118A	01/18/91	100.0	92.0	YES	NO	YES	NO
169	2VB0119A	01/19/91	102.0	95.0	YES	NO	YES	NO
170	2VB0120A	01/20/91	100.0	95.0	YES	NO	YES	NO
171	2VB0121A	01/21/91	100.0	87.0	YES	NO	YES	NO
172	2VB0122A	01/22/91	104.0	93.0	YES	NO	YES	NO
173	1VB0123A	01/23/91	107.0	89.0	YES	NO	YES	NO
174	2VB0123AM	01/23/91	103.0	107.0	YES	NO	YES	NO
175	1VB0124A	01/24/91	98.0	87.0	YES	NO	YES	NO
176	2VB0124A	01/24/91	96.0	89.0	YES	NO	YES	NO
177	1VB0125A	01/25/91	104.0	89.0	YES	NO	YES	NO
178	2VB0125A	01/25/91	105.0	89.0	YES	NO	YES	NO
179	2VB0125B	01/25/91	106.0	89.0	YES	NO	YES	NO
180	1VB0126A	01/26/91	115.0	92.0	YES	NO	YES	NO
181	2VB0126A	01/26/91	95.0	88.0	YES	NO	YES	NO
182	1VB0127A	01/27/91	84.0	86.0	YES	NO	YES	NO
183	2VB0127A	01/27/91	101.0	92.0	YES	NO	YES	NO
184	1VB0128A	01/28/91	89.0	92.0	YES	NO	YES	NO
185	2VB0128A	01/28/91	107.0	93.0	YES	NO	YES	NO
186	1VB0130A	01/30/91	99.0	103.0	YES	NO	YES	NO
187	1VB0131A	01/31/91	121.0	102.0	YES	NO	YES	NO
188	2VB0131AM	01/31/91	89.0	100.0	YES	NO	YES	NO
189	2VB0201A	02/01/91	96.0	92.0	YES	NO	YES	NO
190	2VB0203A	02/03/91	101.0	97.0	NO	NO	YES	NO
191	2VB0204A	02/04/91	90.0	93.0	YES	NO	YES	NO
192	1VB0205A	02/05/91	74.0	105.0	YES	NO	YES	NO
193	2VB0205A	02/05/91	98.0	92.0	NO	NO	YES	NO
194	2VB0207A	02/07/91	95.0	95.0				
195	1VB0207B	02/07/91	74.0	88.0				
196					NO	NO	YES	NO
197								
198								
199								
200								

ACCEPTANCE R1VB0828B	8/28/90	102.0	90.0	YES	NO	3	NO
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WATER:

601

602

MEAN = 98.50

MEAN = 97.37

STD.DEV. = 7.92

STD.DEV. = 4.43

MEAN MEAN

MEAN MEAN

2 s 82.7 114.3

2 s 88.5 106.2

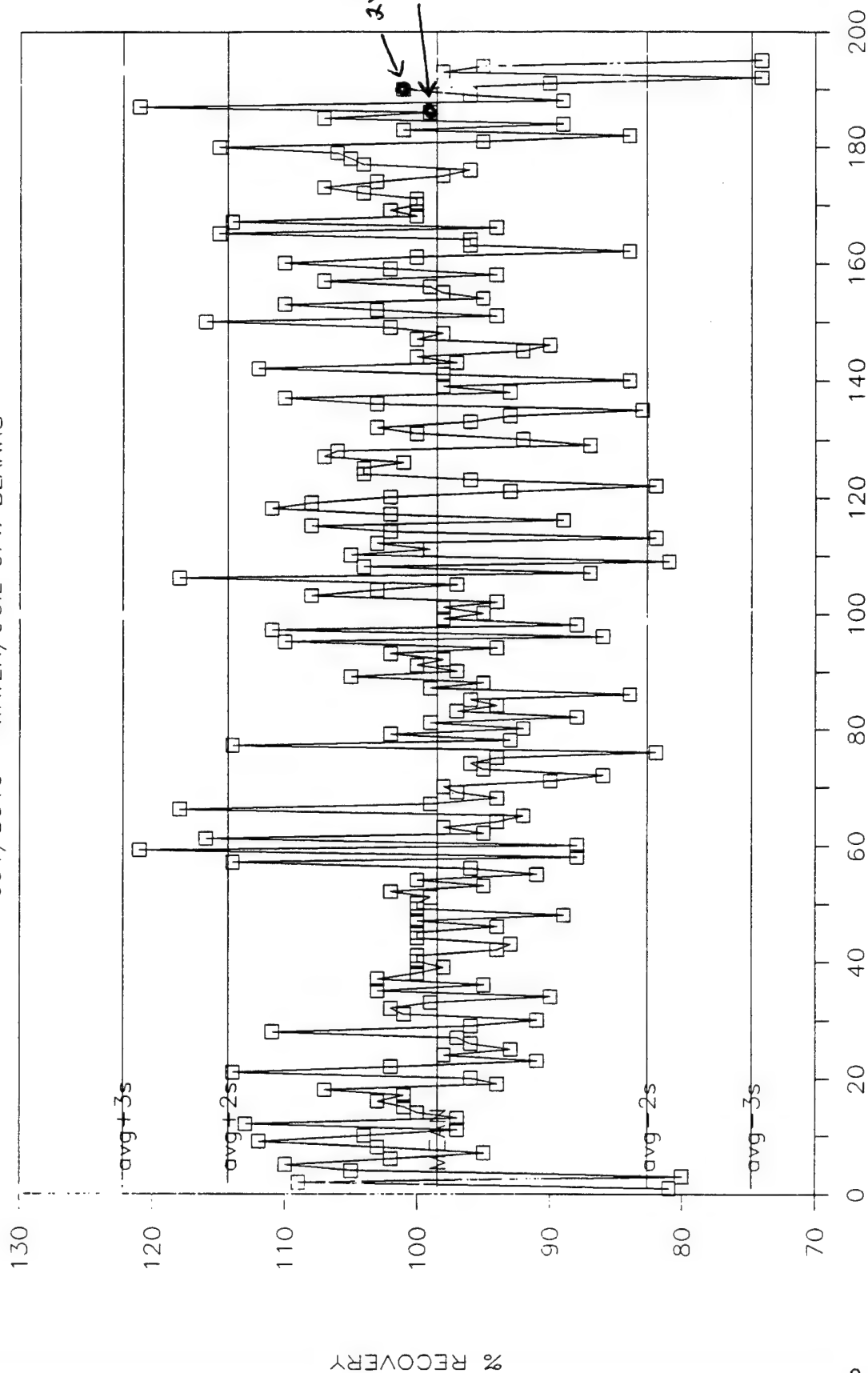
3 s 74.7 122.3

3 s 84.1 110.7

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SURROGATE RECOVERY

601/8010 - WATER/SOIL OFW BLANKS

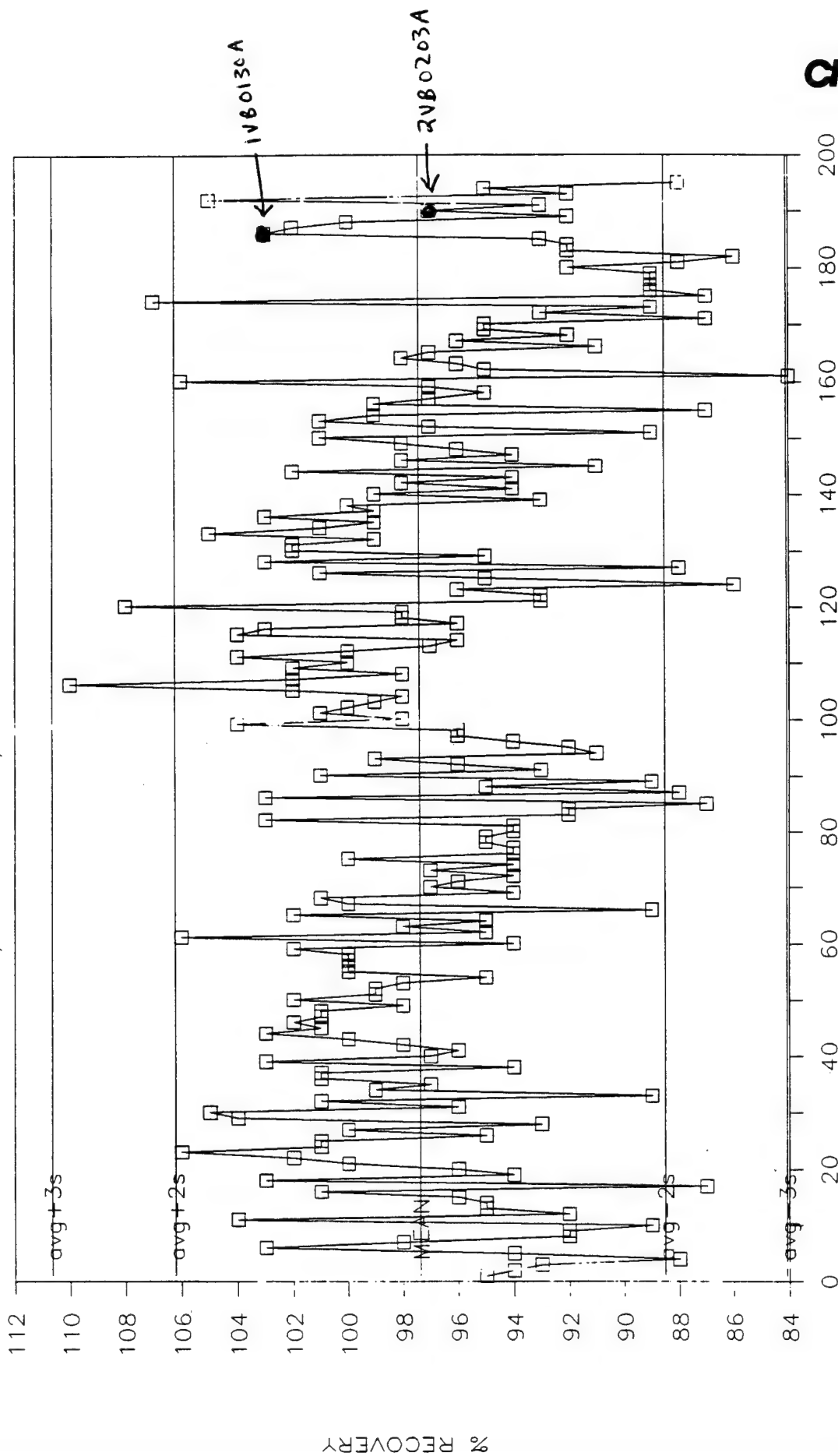


CHM HILL

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SURROGATE RECOVERY

602/8020 - WATER/SOIL OFW BLANKS



CHM HILL

000041



April 17, 1991

MGM27232.UB.SD

Mr. J.P. Martin
CH2M HILL/MGM
2567 Fairlane Drive
P.O. Box 230548
Montgomery, Alabama 36123-0548

RE: Analytical Data for Birmingham ANG, LMG Laboratory No. 18134

Dear Mr. Martin:

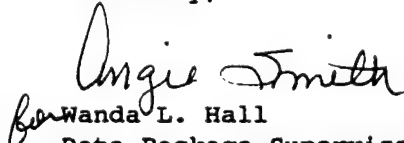
On March 25, 1991, the CH2M HILL Montgomery Laboratory received seven samples with a request for analysis of selected inorganic parameters.

The analytical results and associated quality control data are enclosed. Any unusual difficulties encountered during the analyses of these samples are discussed in the case narratives.

If you should have any questions concerning the data, please inquire.

The CH2M HILL policy is to store samples for up to 30 days after reporting. If you desire, our laboratory will maintain your samples for a longer period at a cost of \$5.00 per sample per month. Samples determined to be hazardous can either be returned to you or disposed of at a cost of \$25.00 per sample.

Sincerely,


Wanda L. Hall
Data Package Supervisor

Enclosures

cc: Mr. Hunter Sartain
Ms. Mary Wisdom/LMG

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TABLE 1

SAMPLE CROSS-REFERENCE SUMMARY

CH2M HILL Laboratory No. 18134

<u>CH2M HILL Sample No.</u>	<u>Sample Description</u>				
18134001	SAMPLE D-57	03/22/91	1430	COMP	
18134002	SAMPLE D-62	03/22/91	1445	COMP	
18134003	SAMPLE 211-SP	03/22/91	1330	COMP	SOIL
18134004	SAMPLE 120-SP	03/22/91	1410	COMP	SOIL
18134005	SAMPLE 380-SP	03/22/91	1340	COMP	SOIL
18134006	SAMPLE 130N-SP	03/22/91	1350	COMP	SOIL
18134007	SAMPLE 130S-SP	03/22/91	1400	COMP	SOIL

CASE NARRATIVE
Cations

Batch Number: 18134

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time:
All holding times were met.

II. Analysis:

- A. Blanks:
All acceptance criteria were met.
- B. Calibration:
All acceptance criteria were met.
- C. ICP Interference Check Sample:
Not applicable to GFAA analysis.
- D. Spike Sample Analysis:
All acceptance criteria were met.
- E. Duplicate Sample Analysis:
All acceptance criteria were met.
- F. Laboratory Control Sample Analysis:
All acceptance criteria were met.
- G. ICP Serial Dilution:
Not applicable to GFAA analysis.
- H. Other:
None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Joe Basile
for Kevin A. Sanders
Inorganic Division Manager

DATE: 4/17/91

000001

TCLP CASE NARRATIVE

The June 29, 1990, Federal Register (TCLP final rule) directs TCLP analytical results to be "bias corrected" according to the corresponding matrix spike recoveries for that analytical batch. The formula as published is:

$$X_c = 100 (X_u / \%R)$$

where: X_c = corrected value;
 X_u = measured value of the unspiked sample;
 $\%R$ = % recovery of the batch-specific matrix spike.

All detectable concentrations were "bias corrected" according to this formula. The raw value, batch specific spike recovery, and adjusted value are listed below.

<u>LMG SAMPLE NO.</u>	<u>ANALYTE</u>	<u>RAW CONC (ug/L)</u>	<u>PRE-SPIKE % REC</u>	<u>BIAS CORRECTED CONC (ug/L)</u>
18134001	TCLP LEAD	25	97	26
18134002	TCLP LEAD	6	97	6
18134003	TCLP LEAD	4	97	4
18134004	TCLP LEAD	21	97	22
18134005	TCLP LEAD	7	97	7
18134006	TCLP LEAD	14	97	14
18134007	TCLP LEAD	4	97	4

Should you have any questions regarding this narrative, please do not hesitate to call me at (205) 271-1445, extension 430.

Joe Basile

for Kevin A. Sanders
 Inorganic Division Manager

CASE NARRATIVE
General Chemistry

Batch Number: 18134

Client/Project: BIRMINGHAM AIR NATIONAL GUARD

I. Holding Time: All criteria met.

II. Analysis:

A.	Calibration:	Acceptance criteria met.
B.	Blanks:	Acceptance criteria met.
C.	Matrix Spike:	Acceptance criteria met.
D.	Duplicate Analysis:	Acceptance criteria met.
E.	Lab Control Sample:	Acceptance criteria met.
F.	Other:	None.

III. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, for other than the conditions detailed above.

SIGNED: Joe Basile
for Kevin A. Sanders
Inorganic Division Manager

DATE: 4/12/91

000003



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: D-57 1430 COMP

Laboratory Sample Number: 18134001

Date Collected: 03/22/91

Matrix: WATER

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	26	ug/L	04/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: g/b

INRPRPT(v910124)

000004



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: D-62 1445 COMP
Laboratory Sample Number: 18134002 Date Collected: 03/22/91 Matrix: WATER

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	6	ug/L	04/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000005



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: 211-SP 1330 COMP SOIL

Laboratory Sample Number: 18134003 Date Collected: 03/22/91 Matrix: SOIL

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	4	ug/L	04/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000006



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG

Laboratory Number: 18134

Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: 120-SP 1410 COMP SOIL

Laboratory Sample Number: 18134004 Date Collected: 03/22/91 Matrix: SOIL

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	22	ug/L	04/09/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	49.2	1360	mg/Kg	04/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000007



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: 380-SP 1340 COMP SOIL

Laboratory Sample Number: 18134005 Date Collected: 03/22/91 Matrix: SOIL

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	7	ug/L	04/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000008



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: 130N-SP 1350 COMP SOIL
Laboratory Sample Number: 18134006 Date Collected: 03/22/91 Matrix: SOIL

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	6	14	ug/L	04/09/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	3.8	281	mg/Kg	04/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000009



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Sample Description: 130S-SP 1400 COMP SOIL
Laboratory Sample Number: 18134007 Date Collected: 03/22/91 Matrix: SOIL

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	4	ug/L	04/09/91
Total Petroleum Hydrocarbons	EPA418.1(MOD)	1.9	57.5	mg/Kg	04/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000010



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548
Atten: MR. J.P. MARTIN

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Sample Description: METHOD BLANK

Laboratory Sample Number: 18134ZS1 Date Collected: 03/25/91 Matrix: SOIL BLANK

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	<3	ug/L	04/09/91
Total Petroleum Hydrocarbons	EPA418.1(M00)	1.6	<1.6	mg/Kg	04/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: 9/3

INRPRPT(v910124)

000011



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG
Laboratory Number: 18134
Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: METHOD BLANK

Laboratory Sample Number: 18134ZW1

Date Collected: 03/25/91

Matrix: WATER BLANK

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
TCLP Lead	EPA239.2/SW7421	3	<3	ug/L	04/09/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000012



REPORT OF ANALYTICAL RESULTS

Date: 04/17/91

Client: CH2M HILL/MGM
2567 FAIRLANE DRIVE
P.O. BOX 230548
MONTGOMERY, ALABAMA 36123-0548

Project Number: MGM27232.UB.SD
BIRMINGHAM ANG

Laboratory Number: 18134

Date Received: 03/25/91

Atten: MR. J.P. MARTIN

Sample Description: BLK SPK/LCS

Laboratory Sample Number: 18134B08

Date Collected: 03/25/91

Matrix: SOIL BLK SPK

Analytical Parameter	Method	Rep Limit	Result	Units	Ana Date
Total Petroleum Hydrocarbons	EPA418.1(MOD)	----	97.0	%REC	04/15/91

Results for non-aqueous matrices are based on dry sample weight unless noted otherwise.

Reviewed by: JB

INRPRPT(v910124)

000013

INITIAL AND CONTINUING CALIBRATION VERIFICATION
LEVEL 1

Lab Name: CH2M HILL LABORATORIES

Batch Number(s) : 18134

[illegible]

Control Limits: 90.0-110.0 (except as noted)

000014

50 MM

INITIAL CALIBRATION

QUADRATIC REGRESSION

DATE = 4/15/91
ANALYST = JAB
PARAMETER = O&GIW, O&GIS, TPHS, TPHW

CONC (X)	mg/1000 ml	%T	ABS (Y)	Y^2	PRED'D X
0.0493		95.63	0.0194	0.0004	0.095
0.2054		93.48	0.0293	0.0009	0.187
0.4108		89.26	0.0493	0.0024	0.375
2.0540		58.64	0.2318	0.0537	2.065
4.1075		34.97	0.4563	0.2082	4.105

Regression Output:

Constant	-0.09
Std Err of Y Est	0.04
R Squared	0.9996813 0.999841
No. of Observations	5.00
Degrees of Freedom	2.00

X Coefficient(s)	9.38	-0.43
Std Err of Coef.	0.52	1.09

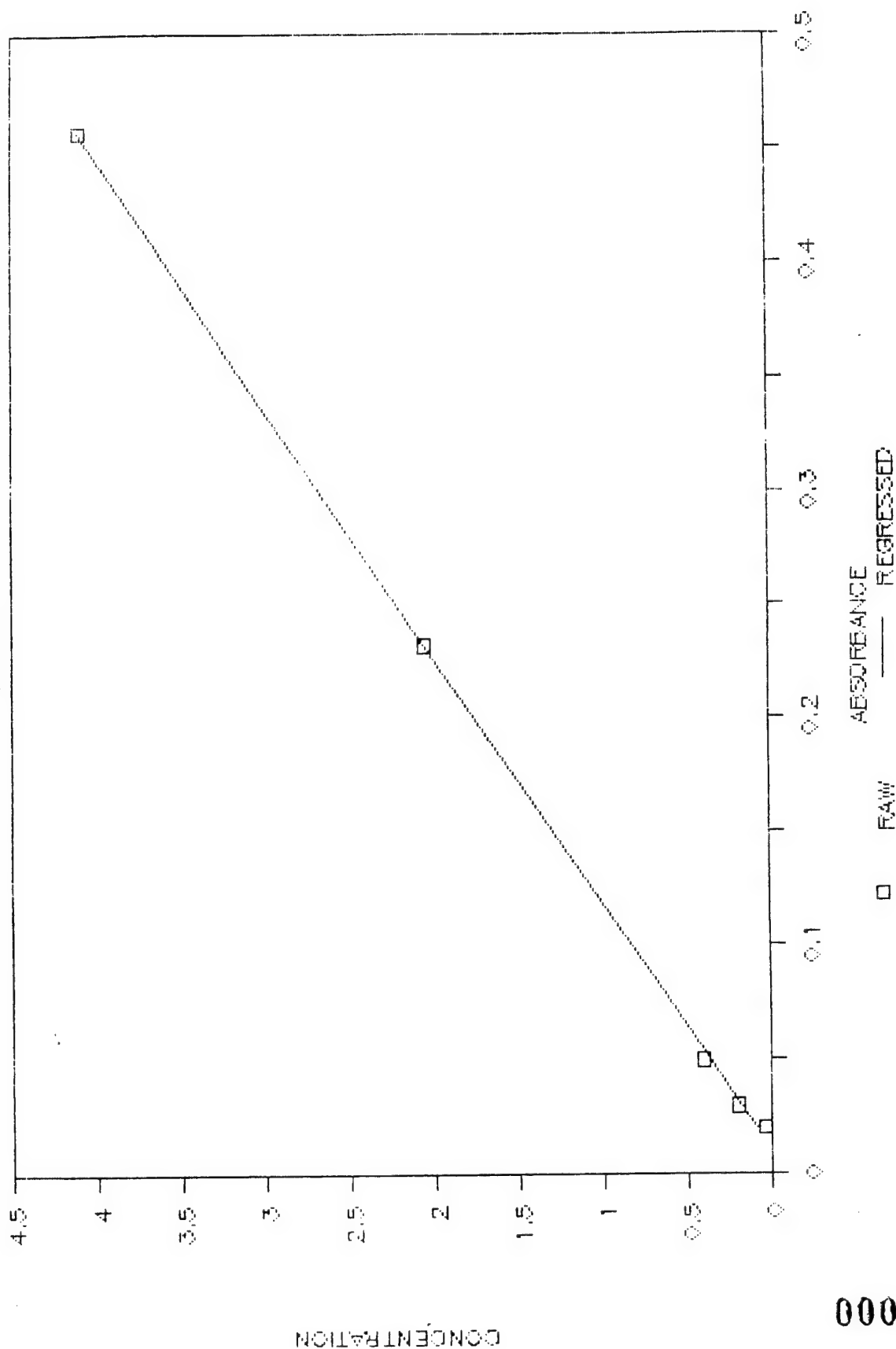
X = 9.38 Y + -0.43 Y^2 - 0.08701

Reviewed by
VTH
4/16/91

000015

INITIAL CALIBRATION - TPH, O&G

4/15/91



910000

50 MM

INITIAL CALIBRATION VERIFICATION
AND CONTINUING CALIBRATION VERIFICATION

ANALYST: JAB
DATE: 4/15/91

ABS
0.334

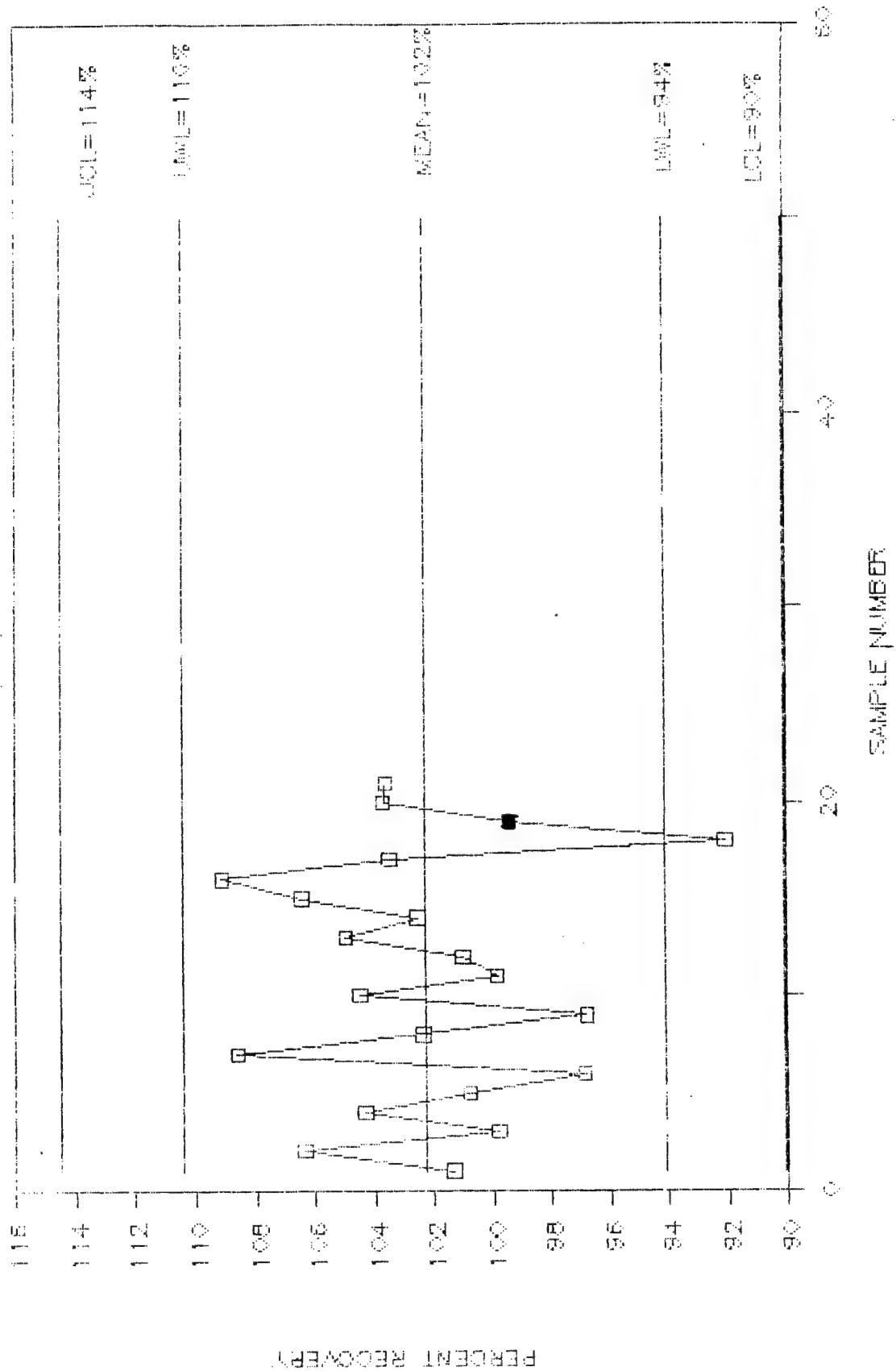
ZT
46.34

REF NUMBER	DATE	ABS	TRUE VALU	DF	CALC. CONC.	% REC
WP 586 CCV1	4/15/91	0.334	30.00	10.00	29.99	100.0
1 WP 586 ICV1	2/1/91	0.327	30.00	10.00	30.84	102.8
2 WP 586 ICV1	2/4/91	0.327	30.00	10.00	30.78	102.6
3 WP 586 CCV1	2/4/91	0.325	30.00	10.00	30.58	101.9
4 WP 586 ICV1	2/5/91	0.323	30.00	10.00	30.12	100.4
5 WP 586 ICV1	2/5/91	0.324	30.00	10.00	30.19	100.6
6 WP 586 ICV1	2/6/91	0.331	30.00	10.00	30.64	102.1
7 WP 586 CCV1	2/6/91	0.332	30.00	10.00	30.74	102.5
8 WP 586 ICV1	2/8/91	0.335	30.00	10.00	31.09	103.6
9 WP 586 ICV1	2/12/91	0.338	30.00	10.00	30.90	103.0
10 WP 586 CCV1	2/12/91	0.335	30.00	10.00	30.58	101.9
11 WP 586 ICV1	2/14/91	0.338	30.00	10.00	30.84	102.8
12 WP 586 CCV1	2/14/91	0.334	30.00	10.00	30.49	101.6
13 WP 586 ICV1	2/18/91	0.336	30.00	10.00	30.64	102.1
14 WP 586 CCV1	2/18/91	0.340	30.00	10.00	30.96	103.2
15 WP 586 ICV1	2/21/91	0.342	30.00	10.00	31.09	103.6
16 WP 586 CCV1	2/21/91	0.337	30.00	10.00	30.62	102.1
17 WP 586 ICV1	2/28/91	0.343	30.00	10.00	30.42	101.4
18 WP 586 CCV1	2/28/91	0.343	30.00	10.00	30.38	101.3
19 WP 586 ICV1	3/5/91	0.345	30.00	10.00	30.68	102.3
20 WP 586 CCV1	3/5/91	0.343	30.00	10.00	30.51	101.7
21 WP 586 ICV1	3/6/91	0.338	30.00	10.00	29.86	99.5
22 WP 586 CCV1	3/6/91	0.345	30.00	10.00	30.43	101.4
23 WP 586 ICV1	3/13/91	0.330	30.00	10.00	30.15	100.5
24 WP 586 CCV1	3/13/91	0.329	30.00	10.00	30.02	100.1
25 WP 586 ICV1	3/18/91	0.332	30.00	10.00	31.03	103.4
26 WP 586 CCV1	3/18/91	0.331	30.00	10.00	30.95	103.2
27 WP 586 ICV1	3/20/91	0.336	30.00	10.00	31.47	104.9
28 WP 586 CCV1	3/20/91	0.327	30.00	10.00	30.65	102.2
29 WP 586 ICV1	3/27/91	0.327	30.00	10.00	30.51	101.7
30 WP 586 CCV1	3/27/91	0.330	30.00	10.00	30.81	102.7
31 WP 586 ICV1	3/28/91	0.328	30.00	10.00	30.74	102.5
32 WP 586 CCV1	3/28/91	0.329	30.00	10.00	30.88	102.9
33 WP 586 ICV1	3/31/91	0.324	30.00	10.00	30.19	100.6
34 WP 586 CCV1	3/31/91	0.325	30.00	10.00	30.29	101.0
35 WP 586 ICV1	4/5/91	0.332	30.00	10.00	30.28	100.9
36 WP 586 CCV1	4/5/91	0.332	30.00	10.00	30.22	100.7
37 WP 586 ICV1	4/10/91	0.327	30.00	10.00	29.87	99.6
38 WP 586 CCV1	4/10/91	0.332	30.00	10.00	30.25	100.8
39 WP 586 ICV1	4/11/91	0.329	30.00	10.00	30.01	100.0
40 WP 586 CCV1	4/11/91	0.334	30.00	10.00	30.48	101.6
41 WP 586 ICV1	4/15/91	0.330	30.00	10.00	29.64	98.8
42 WP 586 CCV1	4/15/91	0.334	30.00	10.00	29.99	100.0

000017

LABORATORY CONTROL SAMPLE (WATER) - LEAD

04/12/91



SHORT-TERM DATA SUMMARY
LEAD LABORATORY CONTROL SAMPLE
04/12/91 WATER MATRIX

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC
1	03/11/91 14MAR91	XXXXXXXX	39	39.520	101.3
2	03/13/91 15MAR91	XXXXXXXX	39	41.480	106.4
3	03/14/91 15MAR91	XXXXXXXX	39	38.930	99.8
4	03/14/91 15MAR91	XXXXXXXX	39	40.680	104.3
5	03/15/91 18MAR91	XXXXXXXX	39	39.300	100.8
6	03/18/91 19MAR91	XXXXXXXX	39	37.780	96.9
7	03/19/91 22MAR91	XXXXXXXX	39	42.360	108.6
8	03/20/91 25MAR91	XXXXXXXX	39	39.920	102.4
9	03/21/91 01APR91	XXXXXXXX	39	37.760	96.8
10	03/25/91 02APR91	XXXXXXXX	39	40.750	104.5
11	03/25/91 02APR91	XXXXXXXX	39	38.940	99.8
12	03/23/91 02APR91	XXXXXXXX	39	39.390	101.0
13	03/23/91 02APR91	XXXXXXXX	39	40.940	105.0
14	03/22/91 02APR91	XXXXXXXX	39	39.990	102.5
15	03/29/91 09APR91	XXXXXXXX	39	41.510	106.4
16	03/28/91 09APR91	XXXXXXXX	39	42.560	109.1
17	04/03/91 09APR91	XXXXXXXX	39	40.350	103.5
18	04/04/91 09APR91	XXXXXXXX	39	35.910	92.1
19	04/09/91 12APR91	XXXXXXXX	39	38.780	99.4
20	04/11/91 12APR91	XXXXXXXX	39	40.430	103.7
21	04/11/91 12APR91	XXXXXXXX	39	40.410	103.6
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
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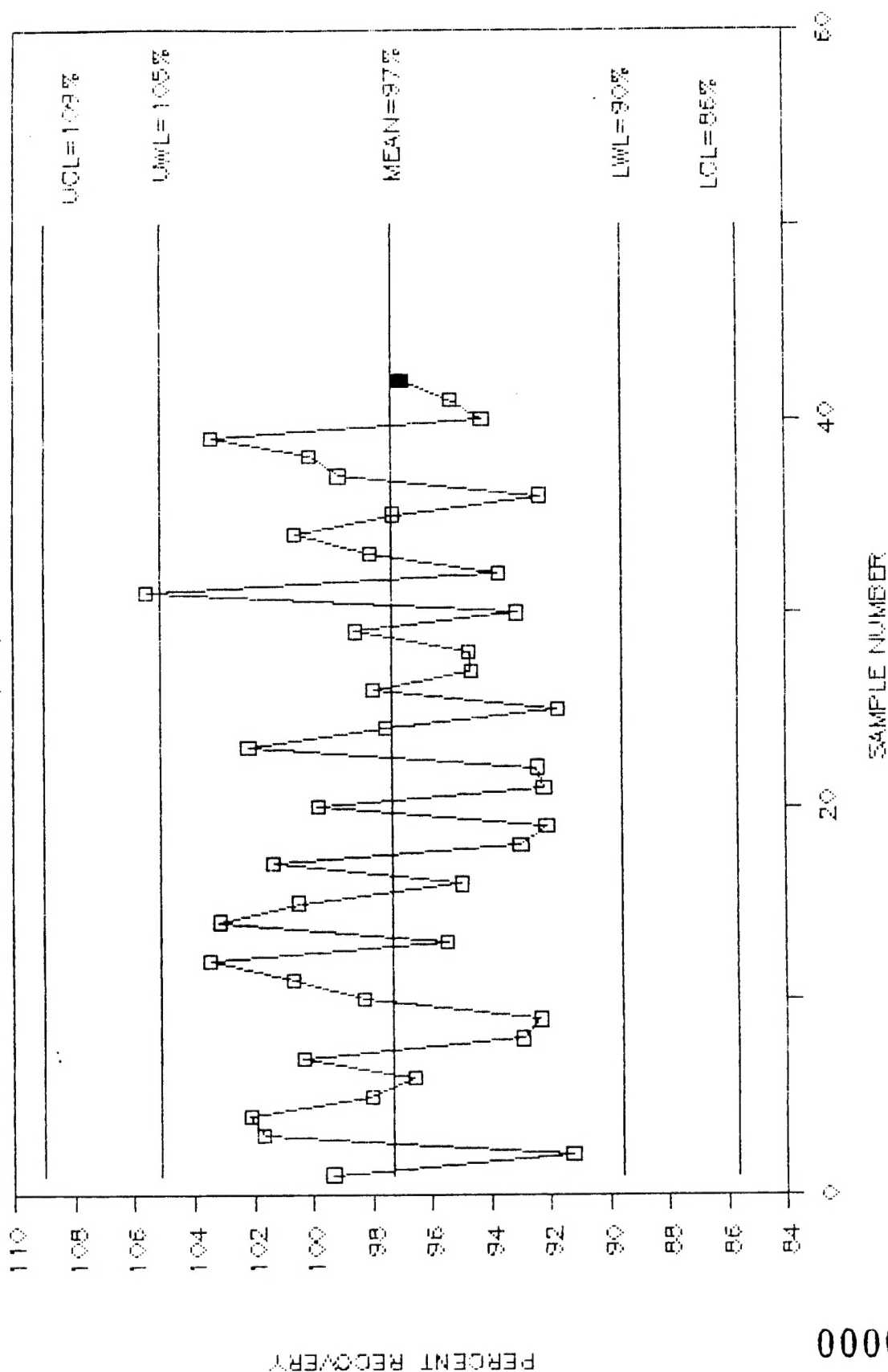
MEAN RECOVERY = 102.2820
STD(N-1) = 4.064470
2 STD(N-1) = 8.128941
3 STD(N-1) = 12.19341

X	X+2S	X+3S	X-2S	X-3S
102.3	110.4	114.5	94.2	90.1
MEAN	UWL	UCL	LWL	LCL

000019

LAB CONTROL SAMPLE - TPH - SOIL BLANK SPIKE

04/15/91



020000

SHORT-TERM DATA SUMMARY
 TPH SOIL LABORATORY CONTROL SAMPLE
 04/16/91 BLANK SPIKE SOIL

LAB #	DATE	NATIVE CONC	CONC of SP ADDED	SPIKED SAMP CONC.	% REC	
1	16846805	10/8/90	XXXXXXXXXX	68.460	68.010	99.3
2	16853B16	10/15/90	XXXXXXXXXX	684.600	624.760	91.3
3	16873B09	10/18/90	XXXXXXXXXX	68.460	69.601	101.7
4	16882B07	10/18/90	XXXXXXXXXX	68.460	69.903	102.1
5	16912B16	10/22/90	XXXXXXXXXX	68.460	67.115	98.0
6	17213B17	11/18/90	XXXXXXXXXX	684.60	661.39	96.6
7	17273B01	12/3/90	XXXXXXXXXX	68.46	68.69	100.3
8	BLK SPIKE	12/10/90	XXXXXXXXXX	68.46	63.59	92.9
9	BLK SPIKE	12/11/90	XXXXXXXXXX	68.46	63.22	92.3
10	BLK SPIKE	1/5/90	XXXXXXXXXX	68.46	67.28	98.3
11	17561B08	1/15/91	XXXXXXXXXX	68.46	68.89	100.6
12	17572B06	1/29/91	XXXXXXXXXX	68.46	70.81	103.4
13	17669B05	1/29/91	XXXXXXXXXX	68.46	65.34	95.4
14	17570B09	2/4/91	XXXXXXXXXX	68.46	70.60	103.1
15	17587B08	2/4/91	XXXXXXXXXX	68.46	68.79	100.5
16	17699B15	2/5/91	XXXXXXXXXX	68.46	65.03	95.0
17	BLK SPIKE	2/8/91	XXXXXXXXXX	68.46	69.37	101.3
18	17670B12	2/12/91	XXXXXXXXXX	68.46	63.64	93.0
19	17762B17	3/5/91	XXXXXXXXXX	68.46	63.06	92.1
20	17776B14	3/5/91	XXXXXXXXXX	68.46	68.32	99.8
21	17777B09	3/6/91	XXXXXXXXXX	68.46	63.11	92.2
22	BLK SPIKE	3/13/91	XXXXXXXXXX	68.460	63.265	92.4
23	17887B02	3/18/91	XXXXXXXXXX	68.460	69.922	102.1
24	17898B05	3/18/91	XXXXXXXXXX	68.460	66.777	97.5
25	17924B04	3/20/91	XXXXXXXXXX	68.460	62.806	91.7
26	BLK SPIKE	3/20/91	XXXXXXXXXX	68.460	67.041	97.9
27	17931B04	3/20/91	XXXXXXXXXX	68.460	64.774	94.6
28	17937B08	3/20/91	XXXXXXXXXX	68.460	64.818	94.7
29	17946B14	3/20/91	XXXXXXXXXX	68.460	67.471	98.6
30	17947B05	3/20/91	XXXXXXXXXX	68.460	63.709	93.1
31	17948B03	3/20/91	XXXXXXXXXX	68.460	72.252	105.5
32	17966B17	3/27/91	XXXXXXXXXX	68.46	64.143	93.7
33	17978B15	3/28/91	XXXXXXXXXX	68.46	67.118	98.0
34	17995B08	3/28/91	XXXXXXXXXX	68.46	68.842	100.6
35	18000B04	3/31/91	XXXXXXXXXX	68.46	66.564	97.2
36	18006B05	3/31/91	XXXXXXXXXX	68.46	63.198	92.3
37	18060B04	4/5/91	XXXXXXXXXX	68.46	67.829	99.1
38	18072B11	4/5/91	XXXXXXXXXX	68.46	68.490	100.0
39	18096B13	4/11/91	XXXXXXXXXX	68.46	70.75	103.3
40	18131B13	4/15/91	XXXXXXXXXX	68.46	64.518	94.2
41	18132B12	4/15/91	XXXXXXXXXX	68.46	65.245	95.3
42	18134B08	4/15/91	XXXXXXXXXX	68.46	66.376	97.0
43						
44						
45						
46						
47						
48						
49						
50						

MEAN RECOVERY = 97.34
 STD(N-1) = 3.90
 2 STD(N-1) = 7.80
 3 STD(N-1) = 11.70

X X+2S X+3S X-2S X-3S
 97.3 105.1 109.0 89.5 85.6
 MEAN UWL UCL LWL LCL

000021

CHM HILL QUALITY ANALYTICS

CHAIN OF CUSTODY RECORD

PROJECT NUMBER MGM 27232-UB-SD		PROJECT NAME BAPB		CLIENT ADDRESS AND PHONE NUMBER HILL/MGM 271-1444				FOR LAB USE ONLY	
CLIENT NAME HILL/Hazwoprap		PROJECT MANAGER J.L. Hartman		ANALYSES REQUESTED				LAB# 18134	
REQUESTED COMP. DATE Normal Tag		COPY TO: H. Sortam		PROJECT NO. MGM 272 32-UB-SD				LAB#	
SAMPLING REQUIREMENTS		SDWA <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER <input checked="" type="checkbox"/>		ACK 3/27/91				VERIFIED	
STA NO.		DATE		TIME		SAMPLE DESCRIPTIONS (12 CHARACTERS)		QUOTE#	
1		3/22		2:30		D-57		NO. OF SAMP	
2		3/22		2:45		D-62		PG	
3		3/22		1:30		211-SP		OF	
4		3/22		2:10		120-SP		REMARKS	
5		3/22		1:40		380-SP			
6		3/22		1:50		130N-SP			
7		3/22		2:00		130S-SP			
						Method Blank			
						Method Blank			
						BLK SPK / LCS			
SAMPLED BY AND TITLE J. Hartman		DATE/TIME 3/22/91 PM		RELINQUISHED BY J. Hartman		DATE/TIME 3/25 8:00 am		HAZWOP/NEESA <input checked="" type="checkbox"/> N	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		DATE/TIME		QC LEVEL 2 3 IH	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		DATE/TIME		COC YES	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		DATE/TIME		ANA RED YES	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		DATE/TIME		CUST SEAL YES	
RECEIVED BY:		DATE/TIME		RELINQUISHED BY:		DATE/TIME		SAMPLE COND. Water / Soil	
RECEIVED BY LAB: Hill/Sortam		DATE/TIME 3/25/91 0800		SAMPLE SHIPPED VIA UPS		BUS		FED-EX	
REMARKS				AIR BILL #					
				HAND		OTHER			
				ENTERED		COC			
				INTO LIMS		REVIEWED			

000022

Hazwoprap and B PR Action 3/25/91

TECPX
PBIT
DICT